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The contracted titles used in this bibliography are based on the *World List of Scientific Periodicals*, with the following exceptions:

B.A. = *Biological Abstracts*
B.H. = *Bulletin of Hygiene*
R.A.M. = *Review of Applied Mycology*
T.D.B. = *Tropical Diseases Bulletin*
V.B. = *Veterinary Bulletin.*

2032. CAMPANELLA (P.). **Su di un caso di sporotricosi.** [On a case of sporotrichosis.]—*Rif. med.*, 63, 29, pp. 692–696, 4 figs., 1949.

Following a discussion of the literature on sporotrichosis, which is stated to be rare in Italy, the author describes a case of the disease, involving the right foot and leg, in a 15-year-old girl at Messina. *Sporotrichum beurmanni* [*S. schencki*] was isolated on Sabouraud's and Pollacci's media from one of the gummous, non-ulcerated lesions. A complete cure was effected by the oral administration of iodide (Mirion).

2033. MACKINNON (J. E.). **La esporotricosis en el Uruguay durante 1948 y 1949.** [Sporotrichosis in Uruguay during 1948 and 1949.]—*An. Inst. Hig. Montevideo*, 3, pp. 127–129, 2 graphs, 1949. [English summary.]

Of the 15 cases of sporotrichosis (*Sporotrichum schencki*) recorded in Uruguay [No. 839] during 1948 and 1949, two occurred in January, three in March, four each in April and May, and one each in July and August. These data confirm previous conclusions as to the greater likelihood of infection in the autumn and beginning of winter [No. 1545].

2034. DROUHET (E.) & MARIAT (F.). **La pyrimidine, facteur de croissance pour les Sporotrichum.** [Pyrimidine, a growth factor for *Sporotrichum*.]—*Ann. Inst. Pasteur*, 79, 3, pp. 306–313, 2 figs., 1 graph, 1950.

The pyrimidine constituent of aneurin [vitamin B_1] was shown by experiments on Schopfer's synthetic medium to be the sole growth factor essential to the development of *Sporotrichum beurmanni* [*S. schencki*], *S. schencki*, and *S. tropicale*. At the optimal concentration of 1 μgm. per ml. of medium, pyrimidine gives rise to the production of 5,500 μgm. of dry mycelium. The substitution of glycerol for glucose in the medium did not enable the organisms to dispense with pyrimidine.

2035. WEICHARDT (H.). **Sporotrichose der Genitalien.** [Sporotrichosis of the genitalia.]—*Arch. Derm. Syph., Berl.*, 192, 4, pp. 290–309, 11 figs., 1951.

Sporotrichum gougeroti [No. 1547] was the agent in this fully reported case of sporotrichosis of the genitalia (a rare site of infection) in a 53-year-old male patient at the University Skin Clinic, Tübingen, Germany.

2036. Negroni (P.) & Prado (J. M.). **Alergía e inmunidad en la esporotricosis experimental.** [Allergy and immunity in experimental sporotrichosis.]—*An. Soc. cient. argent.*, 151, 1, pp. 32–42, 5 figs., 1951. [English summary.]

Immuno-allergic phenomena in the experimental intramuscular infection of guinea-pigs and rats by *Sporotrichum schencki* are demonstrated by the early formation of tuberculoid granulomata in animals reinoculated through the testicles, and by the simultaneous appearance of cystic parasites furnished with a thick membrane and radiating acidophilic structures. The latter would seem to be the expression of a certain degree of resistance in the host rather than the property of a particular species of *Sporotrichum* (*S. asteroides*). The intensity and persistence of the necrotic reactions in rats reveal a high degree of hypersensitivity.

2037. Emmons (C. W.). **Medical mycology.**—*Trans. Brit. mycol. Soc.*, 30, pp. 40–49, 1948.

In comparison with other fungi human pathogens are little known. The diseases they cause are often wrongly diagnosed. Some fungus diseases may assume benign forms as yet unrecognized. Coccidioidomycosis (*Coccidioides immitis*), histoplasmosis (*Histoplasma capsulatum*), chromoblastomycosis (*Phialophora verrucosa* and *Hormodendrum pedrosoi*), the superficial mycoses, and other diseases are discussed with reference to their geographical distribution and the isolation and morphology of the causal organisms. Difficulties in nomenclature are often due to ignorance of the literature, arbitrary disregard of the rules, or undue emphasis on minor cultural variations. Human pathogens fall into two groups, those particularly associated with the human host and common fungi of the environment which only occasionally infect man.

2038. De Almeida (F.). **Micoses e doenças profissionais.** [Mycoses and professional diseases.]—*Med. Deporte Trab.*, 15, 89, pp. 3430–3434, 1950. [Abs. in *Dermatol. & Venereol.* (*Excerp. med.*, Sect. XIII), 5, 7, p. 292, 1951.]

The exposure of agricultural workers to soil fungi, including pathogenic fungi, is emphasized. A typical example is *Coccidioides* [*immitis*], so prevalent in California and already reported from Venezuela, Argentina, and Brazil. From this and other instances it may be concluded that some mycoses are occupational risks to this class of worker, while certain forms of mycetoma, chromomycosis [*Phialophora compacta, P. pedrosoi*, and *P. verrucosa*], sporotrichosis [*Sporotrichum* spp.], and pulmonary mycosis are also to be regarded as potential occupational infections.

2039. Attal (C.). **Mycoses cérebro-meningées.** [Cerebro-meningeal mycoses.]—*Ann. Méd.*, 51, 5, pp. 445–494, 9 figs., 1950.

This is a useful review of the available information, based on 154 contributions to the pertinent literature, on the cerebro-mengineal mycoses associated with *Cryptococcus neoformans*, *Candida albicans*, *Actinomyces israeli* and more rarely *Nocardia asteroides* and *N. madurae*, *Blastomyces dermatitidis*, *Coccidioides immitis*, *Paracoccidioides brasiliensis*, *Aspergillus fumigatus*, *Sporotrichum schencki*, and miscellaneous fungi.

2040. Janke [D.]. **Bericht mit Bilddemonstrationen klinischer, mykologischer, histologischer und tierexperimenteller Untersuchungen über seltene Mykosen.** [Report with figure demonstrations of clinical, mycological, histological, and animal-experimental studies on rare mycoses.]—*Arch. Derm. Syph., Berl.*, 191, pp. 479–482, 1950.

The author's reports on the following rare mycoses [cf. next entry], illustrated by 23 diapositives, were prompted by the fact that such conditions are responsible for 40 per cent. of the erroneous diagnoses, requiring protracted

studies for their rectification, among the patients at a skin tuberculosis sanatorium in Westphalia, Germany: hemisporosis purulenta profunda cutis (*Hemispora stellata*) [*Sporendonema epizoum*: *R.A.M.*, 19, 93, 402], peyronellacosis pulmonis et cutis (*Peyronellaea* sp.), aspergillosis capitis (*Aspergillus amstelodami*), aspergillosis cutis (*A. fumigatus*), and actinomycosis cutis generalisata (*Actinomyces* sp.).

2041. Jung. **Disseminierte Gilchristsche Blastomykose und Sporotrichom der Mamma mit Bild und Kulturdemonstrationen.**—[Disseminated Gilchrist's blastomycosis and sporotrichoma of the breast with figure and culture demonstrations.]—*Arch. Derm. Syph., Berl.*, 191, pp. 482–484, 1950.

In connexion with the reports on rare mycoses in the preceding entry, the writer presents two further such cases from Greifswald, Germany, namely, one of North American blastomycosis [*Blastomyces dermatitidis*] in a 45-year-old prisoner-of-war returned from Siberia, and one of sporotrichosis [*Sporotrichum* sp.] of the right breast in a 23-year-old female.

2042. Smith (D. T.). **The diagnosis and treatment of pulmonary mycoses.**—*Ann. west. Med. Surg.*, 5, 2, pp. 139–141, 1951.

The pulmonary mycoses comprised in this survey, with special reference to their occurrence in California, are coccidioidomycosis (*Coccidioides immitis*), actinomycosis (*Actinomyces bovis*) [*A. israeli*], nocardiosis (*Nocardia asteroides* and other *N.* spp.), North American blastomycosis (*Blastomyces dermatitidis*), histoplasmosis (*H*[*istoplasma*] *capsulatum*), cryptococcosis (*Cryptococcus neoformans*), sporotrichosis (*Sporotrichum schencki*), moniliasis (*Candida albicans*), and geotrichosis, aspergillosis, penicilliosis, and mucormycosis [*Geotrichum*, *Aspergillus*, *Penicillium*, and *Mucor* spp.].

2043. Ajello (L.). **The need for mycological diagnostic services in the public health laboratory.**—*Publ. Hlth Lab.*, 8, 4, pp. 88–91, 1950.

After referring to the lack in public health laboratories in the United States of personnel trained in medical mycology, the author adduces evidence showing that mycotic diseases are widely prevalent in the temperate zone and frequently stimulate the clinical and pathological signs of other diseases. Workers and diagnosticians in health laboratories should watch for pathogenic fungi and always consider them as possible causes of a given pathological condition. All laboratories should have at least one staff member able to demonstrate, isolate, and identify fungi.

2044. Ajello (L.). **Collecting specimens for the laboratory demonstration and isolation of fungi.**—*J. Amer. med. Ass.*, 146, 17, pp. 1581–1583, 1951.

Directions are given for the collection of suitable specimens from patients suspected of harbouring mycotic infections. A table summarizes the various types and sources of materials required by the laboratory for the demonstration and isolation of the fungi concerned in superficial, cutaneous, subcutaneous, and systemic mycoses.

2045. Lewis (G. M.), Sachs (W.), & Hopper (Mary E.). **Mycologic and histologic technics in the study of superficial fungous infections.**—*Arch. Derm. Syph., Chicago*, 63, 5, pp. 622–632, 4 figs., 1951.

Information on the uses and application of routine laboratory procedures for the diagnosis of superficial fungous infections is presented under the headings of obtaining material for mycological examination, the fluorescence test, the direct mount, culture media and methods, stains, pathological findings, and interpretation of laboratory data. The paper (read at the 99th Annual Session of the American Medical Association on 29th June, 1950) was followed by a discussion.

2046. Harris (R. H.). **Use of polyvinyl alcohol in solution for permanent mounting of fungi.**—*Arch. Derm. Syph., Chicago*, 63, 5, p. 633, 1951.

Satisfactory permanent slide mounts of fungi have been obtained by the following method. About 20 gm. elvanol, a polyvinyl alcohol of low viscosity type b, grade 70–05 (E.1. du Pont de Nemours & Co.), is added to 100 ml. cold water and brought almost to boiling point while the two substances are mixed with a spoon. After straining through gauze, 20 per cent. each of lactic acid syrup and liquefied phenol are added, together with methylene blue for colour contrast. About three or four drops of the mounting solution are applied to a specimen in a drop of water on a glass slide, which will harden in 24 to 48 hours after application of the cover glass under pressure.

2047. Dreyfus (Simone). **Mise au point d'une nouvelle technique de culture en cellule sur lames.** [Development of a new method of cell culture on slides.]—*Ann. Parasit. hum. comp.*, 36, 3, pp. 260–262, 1 fig., 1951.

In this modified form of Langeron and Guerra's method of cell culture [cf. *R.A.M.*, 18, 253] the culture is made on a drop of agar in a moist cell constituted by an oval ring and two thin slides, permitting examination of the culture during all stages of growth.

2048. Ajello (L.), Grant (Virginia Q.), & Gutzke (M. A.). **Use of mineral oil in the maintenance of cultures of fungi pathogenic for humans.**—*Arch. Derm. Syph., Chicago*, 63, 6, pp. 747–749, 1951.

Sabouraud's dextrose agar cultures of 264 strains of fungi, representing 15 genera and 34 species, stored under heavy mineral oil at the Communicable Disease Center, Public Health Service, Federal Security Agency, Atlanta, Georgia, had remained viable up to August, 1950, for periods ranging from 9 to 22 months [cf. *R.A.M.*, 28, p. 532].

2049. Pereiro Miguens (M.). **Estudio comparativo de los métodos auxanográficos aplicables a los hongos filamentosos.** [Comparative study of the auxanographic methods applicable to filamentous fungi.]—*Med. colon., Madr.*, 17, 5, pp. 421–450, 4 figs., 1951. [English summary.]

A combination of Negroni's ring and Negroni and Daglio's giant colony in slanting tube methods proved very useful in the author's auxanographic studies [cf. No. 399] on various fungi.

2050. Strauss (R. E.) & Kligman (A. M.). **The use of gastric mucin to lower resistance of laboratory animals to systematic fungus infections.**—*J. infect. Dis.*, 88, 2, pp. 151–155, 1951.

In experiments at the University of Pennsylvania Medical School, Philadelphia, the resistance of young male Swiss mice to systemic fungal infections, e.g., by *Nocardia asteroides* (the most extensively studied), *Blastomyces dermatitidis*, *Sporotrichum schencki*, *Coccidioides immitis*, *Cryptococcus neoformans*, *Candida albicans*, and *Histoplasma capsulatum*, was markedly lowered by the suspension of the pathogen in 5 per cent. gastric mucin [No. 1692]. Most of the organisms uniformly produced fatal results, while with others (except *Actinomyces bovis*) the extent and rapidity of infection were greatly increased.

Gastric mucin exerted no effect when the fungal suspensions were applied to the chorio-allantoic membrane of the chick.

2051. Harkness (W. D.), Loving (W. L.), & Hodges (F. A.). **Pyrexia in Rabbits following the injection of filtrates of typical mold cultures.**—*J. Amer. pharm. Ass.*, 39, 9, pp. 502–504, 1950.

At the Division of Pharmacology, Food and Drug Administration, Federal

Security Agency, Washington, D.C., filtrates of 16 out of 31 mould cultures propagated on a dextrose-peptone medium induced significant rises in body temperature following intravenous injection into rabbits. The maximum increase (average of 2·07°C.) was caused by *Blakesleea trispora*, the levels for the remaining species ranging from 0·63° to 1·83°. The progenic property of the moulds seemed to depend on the composition of the medium, negative results being obtained with 10 species on Czapek's. The pyrogenicity of the cultures was eliminated or greatly decreased by Seitz filtration.

2052. Manten (A.), Klöpping (H. L.), & van der Kerk (G. J. M.). **Investigations on organic fungicides. II. A new method for evaluating antifungal substances in the laboratory.**—*Antonie van Leeuwenhoek J. Microbiol. Serol.*, 16, 4, pp. 282–294, 1950. [*B.A.*, 25, No. 11272.]

Using tetramethylthiuram disulphide as a standard fungicide and various pathogenic fungi as test organisms, the authors compared four methods of testing fungicides: (*a*) the common plate, (*b*) the roll culture, (*c*) slide germination, and (*d*) the gravimetric. Methods (*a*), (*b*), and (*d*) gave concordant results, but (*c*) yielded aberrant data with some fungi, attributed to the influence of the substratum on them. To obtain a fair estimate of the practical value of organic fungicides, laboratory tests of anti-fungal effectiveness should be made with a 'complete medium'. Method (*b*) appeared to be the most practical for routine work.

2053. Goldberg (A. A.). **Le dinaphtylméthane-disulfonate phényl mercurique (pénotrane), nouveau produit substantif résistant au lavage et protégeant les tissus contre les moisissures.** [Phenylmercuric dinaphthylmethane disulphonate (penotrane), a new substantive product resistant to washing and protecting tissues against moulds.]—*Chim. et Industr.*, 64, 3 bis, li–liii, 1950.

The maximum dilutions (expressed in multiples of 1,000) of phenylmercuric dinaphthylmethane-disulphonate (penotrane) inhibiting the growth on Czapek's agar of certain fungi pathogenic to man were as follows: *Rhizopus nigricans* [*R. stolonifer*] and *Penicillium expansum* 10, *P. citrinum* and *Aspergillus niger* 9, *P. notatum* and *Monilia* [*Candida*] *albicans* 16, *A. fumigatus* 7, *Microsporum audouini*, *M. lanosum* [*M. canis*], and *Trichophyton mentagrophytes* 24, and *T. purpureum* [*T. rubrum*] and *Epidermophyton inguinale* [*E. floccosum*] 50.

2054. Gottlieb (D.), Bhattacharyya (P. K.), Carter (H. E.), & Anderson (H. W.). **Endomycin, a new antibiotic.**—*Phytopathology*, 41, 5, pp. 393–400, 1951.

A new antibiotic, designated endomycin, has been isolated from an unidentified species of *Streptomyces* from soil collected in the Cache River Valley, Illinois. Its toxicity to mice appears from the results of preliminary experiments to be of a low order. The numbers of endomycin units (a unit being defined as the minimum amount of antibiotic per ml. which would inhibit the growth of *Torula* [*Torulopsis*] *utilis* for 24 hours in Emerson's medium) exerting a fungistatic action on *Candida albicans*, *Microsporum canis*, *C. guilliermondi*, *Trichophyton interdigitale*, *T. rubrum*, and *M. audouini* were 5, 7·5, 25, 25, 25, and 25, respectively.

2055. Smith (L. M.). **Treatment of deep fungous infections.**—*Postgrad. Med.*, 9, 3, pp. 258–259, 1951.

This is a review of seven recent contributions to the literature on the therapy of the deep mycoses, which is considered to be even reasonably adequate only in the cases of sporotrichosis [*Sporotrichum schencki* and other *S.* spp.] and actinomycosis (*Actinomyces bovis* [*A. israeli*] and various aerobic organisms).

2056. Holm (P.). **Studies on the aetiology of human actinomycosis. I. The 'other microbes' of actinomycosis and their importance.**—*Acta path. microbiol. scand.*, 27, 5, pp. 736–751, 1950.

At the State Serum Institute, Copenhagen, the author examined the pus from some 650 patients with closed lesions containing anaerobic microbes of the *Actinomyces* group. In no case were they encountered in pure culture, being uniformly accompanied by other micro-organisms. This finding is at variance with the hitherto accepted view that anaerobic actinomycetes are the sole cause of human actinomycosis. It is postulated, therefore, that the disease results from multiple or combined infections arising through a synergism between anaerobic species of *Actinomyces* and certain other micro-organisms, including *Bacterium actinomycetem comitans* and various Gram-negative bacilli, streptococci, and the like [cf. next entries].

2057. Thompson (L.). **Isolation and comparison of Actinomyces from human and bovine infections.**—*Proc. Mayo Clin.*, 25, 4, pp. 81–86, 2 figs., 1950.

From a comparative study at the Mayo Clinic, Rochester, Minnesota, between July, 1948, and November, 1949, of eight strains of *Actinomyces* from human and 11 from bovine infections, the author concludes, in agreement with Dagny Erikson (*Med. Res. Coun., Spec. Rep. Ser.*, 240, 63 pp., 1940), that there are two distinct anaerobic species, *A. israeli*, responsible for most of the typical cases in man, and *A. bovis*, the usual agent of lumpy jaw in cattle. However, since one strain of *A. israeli* was recovered from a bovine source, it seems that this species may also be concerned in the infection of cattle. Moreover, the work of Holm [cf. preceding entry] and Lentze (*Zbl. Bakt.*, Abt. 1 (Orig.), 141, pp. 21–36, 1938) indicates that a small number of human infections may be due to *A. bovis*.

2058. Thompson (L.) & Lovestedt (S. A.). **An Actinomyces-like organism obtained from the human mouth.**—*Proc. Mayo Clin.*, 26, 10, pp. 169–175, 1 fig., 1951.

Of 25 cultures made from the mouths of 24 patients at the Mayo Clinic, Rochester, Minnesota, two were identified as *Actinomyces israeli* and nine as a species agreeing with Naeslund's description (*Acta path. microbiol. scand.*, 2, pp. 110–140, 1925), for which the name of *A. naeslundi* is accordingly proposed. From the evidence so far available this organism appears to be a saprophyte which is frequently confused with *A. israeli* [cf. previous entries]. It grows under both aerobic and anaerobic conditions, the optimum temperature being 37° C.

2059. Hurst (Valerie). **Morphologic instability of actinomycetes associated with enamel.**—*J. dent. Res.*, 29, 5, pp. 571–582, 4 pl., 1950.

In studies at the University of California, San Francisco, cultures of actinomycetes obtained from the enamel surfaces of human teeth, coccoidal and filamentous cells were found to be closely associated. Direct observation of cell division and growth showed that the coccoidal cells produced filamentous ones and were, therefore, pleomorphic forms. In other respects the morphology of these actinomycetes agreed with that of Ørskov's group IIb and the Wolff-Israel type (*Actinomyces israeli*). The pleomorphism of these strains indicates that the actinomycetes of enamel surfaces may be difficult to distinguish from the common diphtheroids and cocci of the enamel flora and further that the filamentous and coccoidal forms observed histologically in preclinical carious lesions may be actinomycetes.

2060. Runyon (E. H.). **Nocardia asteroides : studies of its pathogenicity and drug sensitivities.**—*J. Lab. clin. Med.*, 37, 5, pp. 713–720, 1951.

Two strains of *Nocardia asteroides* recently isolated from pulmonary infections in patients at the Lawson Veterans Administration Hospital, Chamblee, Georgia, and a laboratory strain reacted similarly to drugs but differed in their pathogenicity to mice, the mortality rate in which was increased by the addition of mucin to the inoculum [cf. No. 2050]. Although inhibitory to the fungus *in vitro*, streptomycin failed to confer protection on mice, while aureomycin (the most strongly fungistatic of all the drugs tested in the laboratory) was doubtfully effective and penicillin proved useless for the object in view both *in vitro* and *in vivo*. Sulphadiazine at a concentration of 4 μgm. per ml. arrested the development of the pathogen in the test tube, and at a daily dosage of 5 mg. it decreased the mortality rate of inoculated mice.

2061. Sielaff (H. J.) & Heinrich (S.). **Über die diagnostische Verwertbarkeit der Intrakutantestreaktion bei der Aktinomykose.** [On the diagnostic applicability of the intracutaneous test reaction in actinomycosis.]—*Dtsch. med. Wschr.*, 76, 31–32, pp. 277–279, 1 fig., 1951.

Intracutaneous tests with the vaccine of a pathogenic strain of *Actinomyces israeli* in dilutions of 1 in 1, 1 in 10, 1 in 100, and 1 in 1,000, were performed on 12 persons suffering from actinomycosis at Erlangen, Germany. The reactions in four cases were strong, in two weak, and in the remaining six very weak or absent. It is concluded that the intracutaneous test, while of little diagnostic value alone, may be a useful adjunct to other methods in attempts to establish the etiology of the disease at an early stage.

2062. Porter (I. A.). **Actinomycosis in the north-east of Scotland.**—*Brit. med. J.*, *1951*, 4719, pp. 1360–1363, 1 graph, 1951.

Between 1936 and 1948, 98 cases of actinomycosis (*Actinomyces israeli*), all confirmed by laboratory examination, occurred in five counties in the north-east of Scotland. There were 68 males (69 per cent.) and 30 females in the series, and the maximum number of cases (53) fell in the 11- to 30-year-old age group. In 72 out of 95 cases (75 per cent.) the lesions were confined to the cervico-facial region and in 14 to the abdomen. Twenty of the patients were farmers, 11 were members of the armed forces, 15 were housewives, and 15 schoolchildren. Eight of the cases were fatal (five abdominal and one each involving the skin and thorax, cervico-facial and surrounding skin, and cervico-facial with extension to the central nervous system).

2063. Tinsley (M.) & Froman (A.). **Actinomycotic brain abscess.**—*Ill. med. J.*, 98, 5, pp. 303–306, 3 figs., 1950.

A case of actinomycotic abscess of the brain, probably associated with pleuro-pulmonary lesions of the same etiology, in a 55-year-old male patient is reported from the Michael Reese Hospital, Chicago. The organism isolated on Brewer's thioglycollate broth from the purulent material produced 'snow-flake' colonies typical of *Actinomyces bovis* [cf. No. 2057]. A cure was effected by means of penicillin (total of 36,000,000 units) and other antibiotics, followed by surgical drainage.

In this connexion the writers emphasize the importance of pre-operative culturing for fungi from the spinal fluid, which would no doubt have yielded the causal organism though negative for bacilli.

2064. Glahn (M.). **Cervico-facial actinomycosis—typical and non-typical.**—*Acta chir. scand.*, 99, 6, pp. 537–544, 1950.

On the basis of his investigations at two Copenhagen hospitals on 25 cases of cervico-facial actinomycosis, the author distinguishes two clinical aspects

of the disease, namely, the classical, chronic form caused by *Actinomyces israeli* or another well-defined species herein designated group II, and an acute-subacute form due to two other organisms of the *Actinomyces* group for which the name of actinomycosis atypica is suggested.

2065. Bednář (B.) & Hammer (J.). **Carditis actinomycotica s centrální aktinomykotickou pyemií.** [Actinomycotic carditis with central actinomycotic pyaemia.]—*Čas. Lék. čes.*, 90, 27, pp. 842–845, 4 figs., 1 graph, 1951. [Russian and English summaries.]

From the Pathologico-Anatomical Institute of Charles University, Prague, Czechoslovakia, the authors report the post-mortem discovery of actinomycotic carditis (*Actinomyces israeli*) in a 47-year-old female who had suffered for 14 months from dyspnoea and cough and later showed symptoms of occlusion of the superior vena cava. Infection probably originated at the base of the right lung and spread to the pericardial cavity (obliterated by adhesions), superior vena cava, right auricle, and tricuspid valve, giving rise to terminal septicopyaemia with miliary dissemination in the lungs. In all the affected areas there was much fibrous, scar-like tissue containing pus-filled cavities.

The etiology, pathogenesis, and differential diagnosis of the disease are briefly discussed.

2066. Lloyd Davies (J. A.). **Primary actinomycosis of the breast.**—*Brit. J. Surg.*, 38, 151, pp. 378–381, 1951.

A case of primary actinomycosis (*Actinomyces bovis*) [? *A. israeli*] of the breast in a 27-year-old female is reported from Chase Farm Hospital, Enfield, Middlesex. Therapy was effected by means of a course of penicillin, administered parenterally over a period of 14 days and totalling 4,900,000 units. Thirteen previously recorded cases are briefly reviewed and further information on the disease is presented under the headings of etiology and pathology, clinical picture, diagnosis, and treatment.

2067. Ritama (V.) & Paaso (E. J.). **Nocardiosis and tuberculosis. Problems of differential diagnosis.**—*Ann. Med. intern. Fenn.*, 39, 4, pp. 250–262, 6 figs., 1951.

The nature of the lesions and the morphology of the associated microorganisms disclosed by the autopsy on a six-year-old boy at the Children's Clinic, University of Helsinki, Finland, were strongly suggestive of nocardiosis. The case presented features indicative of an intermediate position between the processes caused by *Nocardia asteroides* and *N. intracellularis* [Nos. 1317 to 1321]. The child's history revealed a strong hereditary tendency to tuberculosis, which was also suspected on the basis of clinical, X-ray, and laboratory findings and of the routine biopsy. However, Pirquet's cutaneous and Mantoux's intracutaneous tuberculin tests were negative, while another distinguishing characteristic was an abundance of acid-fast rods, detected by means of the Ziehl-Neelsen stain, in the gastric contents and lymph gland punctates.

2068. Strauss (R. E.), Kligman (A. M.), & Pillsbury (D. M.). **The chemotherapy of actinomycosis and nocardiosis.**—*Amer. Rev. Tuberc.*, 63, 4, pp. 441–448, 1951. [Spanish and French summaries.]

At the University of Pennsylvania School of Medicine, Philadelphia, the inhibiting potentialities of various chemotherapeutic agents were tested *in vitro* against three strains of *Actinomyces bovis*, ten of *Nocardia asteroides*, and one each of *N. mexicana*, *N. madurae*, *N. purpurea*, and *N. haemolytica*.

The three strains of *A. bovis* varied markedly in susceptibility. The most

active drugs against the organism were (in descending order of efficiency) chloramphenicol, penicillin, streptomycin, and aureomycin. The various species of *Nocardia* were most effectively inhibited by aureomycin, chloramphenicol, terramycin, myvizone (*p*- formylacetanilide thiosemi-carbazone) and N, N- bis (thiocarbamyl) hydrazine. Sodium sulphadiazine was moderately fungistatic *in vitro* to all the strains tested. In protection tests against experimental nocardiosis in mice the last-named compound, dissolved daily in the drinking water at a dosage of 80 mg. per kg. body weight, gave outstandingly good results, 10 out of 12 surviving on the fifth day after infection as compared with none in the control series. Aureomycin, chloramphenicol, and myvizone conferred only partial protection.

2069. Bloedner (C. D.). **Ein Beitrag zur Aktinomykose der Lungen.** [A contribution to actinomycosis of the lungs.]—*Tuberkulosearzt*, 4, 11, pp. 658–663, 1 fig., 1950.

Two cases of pulmonary actinomycosis (one fatal) caused by *Actinomyces* [*israeli*] are reported from the Tuberculosis Hospital 'Deisterhort', Bad Münder, Germany, both in males, aged 55 and 42 years, engaged in agriculture. Reference is made to some other contributions to the literature on the subject.

2070. Rananaure (M. N.). **Primary actinomycosis of the lung.**—*Indian J. med. Sci.*, 5, 3, pp. 63–66, 2 figs., 1951.

A case of primary actinomycosis (*Actinomyces bovis*) [*A. israeli*] of the left lung in a 32-year-old male general practitioner is reported from the Medical College, Poona. The condition was correctly diagnosed only after the histological examination of the tumour-like mass which ultimately developed on the left chest wall and was excised with satisfactory results.

2071. Winston (M. E.). **Actinomycosis of the spine.**—*Lancet*, 260, 6661, p. 945, 1951.

A case of actinomycosis of the spine in a 35-year-old female patient of the South Manchester Hospital Group is reported. The causal organism (referred to as a 'streptothrix') was cultured from a discharge from a small sinus to the left of segments T3 and T4 of the vertebrae. The condition responded very favourably to streptomycin therapy.

2072. Raper (F. P.). **Abdominal actinomycosis following a perforated duodenal ulcer.**—*Brit. J. Surg.*, 38, 150, pp. 240–241, 1950.

A case of abdominal actinomycosis following a perforated duodenal ulcer in a 25-year-old female patient is reported from the General Infirmary, Leeds. The strain of *Actinomyces* cultured from the pus of an abscess in the left lumbar region proved to be sensitive to penicillin, 96 mega-units of which were administered in 50 days with excellent results.

2073. Putman (A. C.), Dockerty (M. B.), & Waugh (J. M.). **Abdominal actinomycosis. An analysis of 122 cases.**—*Surgery*, 28, 5, pp. 781–800, 4 figs., 9 graphs, 1950.

This review of the historical aspects, bacteriological factors, incidence, pathogenesis, pathological aspects, clinical course, diagnosis, and treatment of abdominal actinomycosis (*Actinomyces bovis*) [*A. israeli*] is based on the observation of 122 cases at the Mayo Clinic, Rochester, Minnesota, supplemented by a perusal of 61 contributions to the relevant literature. The majority (102) of the patients in this series, which comprised 80 males and 42 females, were between 10 and 50 years of age, and in all but seven there was a history of previous acute gastro-intestinal illness. Treatment of the disease

should embrace strenuous dietary and supportive therapy, including multiple whole blood transfusions, and the daily administration of penicillin in dosages of 1,000,000 Oxford units for one to two months. The following were the rates of cure or improvement in the 108 cases for which adequate follow-up data were available: 73 who could not be given penicillin or sulphonamides, 16 per cent.; 13 receiving one of the sulphonamides, 38·7; and 24 treated with penicillin, 95·8.

2074. Gordon (M. A.) & Dubose (H. M.). **Anorectal actinomycosis with extensive gluteal and thigh involvement. Report of a case.**—*Amer. J. clin. Path.*, 21, 5, pp. 460–463, 1951.

A case of ano-rectal actinomycosis in a 59-year-old patient is reported from the Lawson Veterans Administration Hospital, Atlanta, Georgia. There was extensive secondary involvement of the skin and subcutaneous tissues of the perianal, gluteal, and thigh regions. The pus of the thigh lesions yielded granules from which *Actinomyces bovis* [*A. israeli*] was cultured. Penicillin and sulphadiazine were administered (total dosages of 20,000,000 units and 84 gm., respectively), with beneficial results.

2075. McVay (L. V.), Guthrie (Frances), & Sprunt (D. H.). **Aureomycin in the treatment of actinomycosis.**—*New Engl. J. Med.*, 245, 3, pp. 91–96, 2 figs., 1951.

From Memphis, Tennessee, the authors report the successful treatment with aureomycin [No. 1593] of two further cases of cervico-facial and one case of abdominal actinomycosis (*Actinomyces bovis*) [? *A. israeli*], all in males, aged 24, 39, and 47, respectively. The results of *in vitro* sensitivity studies on the fungus isolated from two of these patients and two outside the present series established a definite inhibitory action by the drug.

2076. Kelly (H. H. D.). **Intestinal actinomycosis treated with chloramphenicol and aureomycin. Case report.**—*Brit. med. J.*, 1951, 4734, p. 779, 2 graphs, 1951.

Details are given of the antibiotic treatment of a case of intestinal actinomycosis in a 35-year-old male. Penicillin failed to affect the course of the disease and the improvement produced by chloramphenicol was not maintained. Excellent and apparently permanent results, however, were given by the administration of aureomycin at a dosage of 0·5 gm. four-hourly for 24 hours, 0·5 gm. six-hourly for five days, 0·5 gm. eight-hourly for 37 days, and 0·25 gm. eight-hourly for 64 days.

2077. Geister (R. S.) & Meyer (Esther). **The effect of aureomycin and penicillin on experimental actinomycosis infections in Mice.**—*J. Lab. clin. Med.*, 38, 1, pp. 101–111, 1951.

In connexion with studies on the *in vivo* activity of aureomycin and penicillin in actinomycosis of mice experimentally induced by *Actinomyces bovis* [No. 2081], standardization of the minimum infective dose for 100 per cent. of the animals was accomplished with two strains of the organism. The prophylactic and therapeutic efficacy of both drugs against the disease was demonstrated by a method involving a 10- to 15-day period of treatment.

2078. Hosemann (G.). **Aktinomykose und Penicillin.** [Actinomycosis and penicillin.]—*Arch. klin. Chirurg.*, 264, pp. 198–200, 1950.

From Freiburg, Germany, the author reports the cure, by massive doses of penicillin combined with rational surgical procedures, of two extremely severe cases of actinomycosis, one pulmonary in a 63-year-old male, and the other abdominal in a 51-year-old female.

2079. Braun (H.) & Pinker (H.). **Zur Therapie röntgenrefraktärer Fälle von Aktinomykose, unter besonderer Berücksichtigung der Penicillinbehandlung.** [On the therapy of cases of actinomycosis refractory to Röntgen rays, with special reference to penicillin treatment.]—*Dtsch. med. Wschr.*, 76, 21, pp. 711–713, 1951.

Following a discussion of reports in the relevant literature on the therapy of actinomycosis (*Actinomyces* [*israeli*]), with special reference to penicillin, the authors report successful results with the drug from the Medical Clinic of Würzburg University in one case each of pulmonary and ileo-caecal infection. Both had proved refractory to X-ray treatment. In the pulmonary case a combination of penicillin and supronal (sulphonamide) was necessary to achieve a cure.

2080. Kingman (H. E.) & Palen (J. S.). **Streptomycin in the treatment of actinomycosis.**—*J. Amer. vet. med. Ass.*, 118, 886, pp. 28–30, 3 figs., 1951.

Very encouraging results were obtained with streptomycin therapy in most of the ten cases of bovine actinomycosis reported from Cheyenne, Wyoming. The drug was administered for periods ranging from a week to nine months in total amounts from 15 to 65 gm. A laboratory diagnosis of *Actinomyces bovis* was secured in four cases.

2081. Meyer (Esther) & Verges (P.). **Mouse pathogenicity as a diagnostic aid in the identification of Actinomyces bovis.**—*J. Lab. clin. Med.*, 36, 5, pp. 667–674, 5 figs., 1950.

The intraperitoneal injection of hog gastric mucin [No. 2060] enhanced the invasiveness of *Actinomyces bovis* in a high percentage of young, male albino mice at the University of Illinois, College of Medicine, Chicago [No. 2077]. Sulphur granules and branched mycelial clumps were found in the purulent exudates and also in histologic sections. Macroscopic lesions resembling those of tuberculosis developed 10 to 15 days after inoculation and persisted up to 45 days. Only in two instances did the mucin act similarly on the 'anaerobic diphtheroids' used for comparison. The organisms, moreover, produced lesions differing macroscopically from those associated with *A. bovis* and containing neither sulphur granules nor mycelial aggregates.

2082. Norris (E. O.). **The life cycle of Actinomyces bovis.**—*J. Hyg.*, 49, 1, pp. 46–51, 2 figs., 1951.

The material for the author's studies at the University of Birmingham on the life-history of *Actinomyces bovis* comprised ten strains isolated from lesions in cattle, one strain isolated from a human lesion, and one from a human lesion supplied by the National Collection of Type Cultures. The organism was shown to traverse a complete life-cycle. The spore germinates to produce a haploid generation, from which a diphoid generation arises by conjugation of specialized haploid cells. A haploid spore is produced from the diploid generation by reduction division.

2083. Bader (D. W.). **Canine actinomycosis.**—*Vet. Med.*, 14, 11, pp. 477–478, 1949.

The symptoms and post-mortem findings in case of actinomycosis [? *Actinomyces bovis*] of the liver and peritoneal cavity in a four-year-old male English setter are reported from Petersburg, Virginia.

2084. Flarer (F.) & Mezzadra (G.). **Studio clinico-sperimentale dell' allergia. I. Dimostrazione di fattori flogogeni nella cute normale di ammalati di tricofizia granulomatosa.** [A clinical and experimental study of allergy. I. Demonstration of phlogogenic factors in the normal skin of patients affected by granulomatous trichophytosis.]—*Mycopathologia*, 4, 3, pp. 235–242, 2 graphs, 1948. [English summary.]

A study was made of the phlogogenic action of skin extracts from eight cases of deep trichophytosis, the extracts being prepared by means of skin sheets taken from the same subject at different stages of the disease and injected simultaneously into test animals.

Phlogogenic action was found to increase and then diminish in these experiments and when plotted against time the resulting curve is parabolic. This decrease proceeds parallel with the development of immunity. The authors conclude that the phlogogenic substances involved derive directly from the original site of infection; the allergic action partly due to them tends to disappear as immunity is reached.

2085. Díaz-Rubio (M.), Jiménez Orta (M.), & Lamadrid (L.). **Estudio durante un año del contenido en hongos del aire de Cadiz ; su relación con ciertos factores meteorológicos.** [A year's study of the fungal content of the air of Cadiz; its relation to certain meteorological factors.]—*Rev. clín. esp.*, 38, 3, pp. 182–191, 3 graphs, 1 map, 1950. [English, German, and French summaries.]

During the year from April, 1948, to May, 1949, the fungal content of the air of Cadiz, Spain [No. 1847], reached a peak from May to August and was low in the winter months. Of the total of over 2,000 colonies collected on nutrient media in Petri dishes, 67·5 per cent. were species of *Penicillium*, followed in descending order of frequency and local importance by *Cladosporium*, *Alternaria*, *Aspergillus*, '*Macrosporium*', *Rhizopus*, '*Monilia*', and 22 other genera. No close correlation could be established between the number of colonies developing on the plates and barometric pressure, temperature, humidity, and direction of the prevailing winds.

2086. Haserick (J. R.). **Simulation of the lupus erythematosus phenomenon by materials of fungal origin.**—*J. invest. Derm.*, 16, 4, pp. 211–215, 2 figs., 1951.

The results of experiments at the Cleveland Clinic, Ohio, indicate that fungi, particularly of the *Aspergillus* group, induce an alteration closely resembling lupus erythematosus when added to heparinized bone marrow preparations. Rosettes of clumped leucocytes and phagocytic cells of the 'L.E. cell' type were observed.

2087. De Amicis (E.). **Osservazioni cliniche, micologiche e patogenetiche su tre casi di otomicosi da Aspergillus versicolor.** [Clinical, mycological, and pathogenetic observations on three cases of otomycosis due to *Aspergillus versicolor*.] —*Boll. Mal. Orecch.*, 68, 7–8, pp. 278–325, 35 figs., 1950. [French and English summaries.]

Three cases of bilateral otomycosis caused by *Aspergillus versicolor* are reported from Pavia, Italy, involving members of the same family using infected toilet articles. The disease pursues a chronic course (24, 10, and 4 years in the cases under discussion) and consists in the obstruction of three-quarters of the external ear duct by a copious assemblage of epidermal squamae. The pathogenicity of the fungus was shown by experiments on human subjects and animals to be of a low grade. Its taxonomy is discussed in relation to biometrical and cultural data.

2088. Peet (M. M.). **Aspergillus fumigatus infection of the cerebellum.**—*Trans. Amer. neurol. Ass.*, 71, p. 165, 1946 (1947). [*B.A.*, 23, No. 15934.]

A pure culture of *Aspergillus fumigatus* was obtained from an intracranial lesion involving the right cerebellum of a seven-year-old child.

2089. Ross (C. F.). **A case of pulmonary aspergillosis (Aspergillus fumigatus).**—*J. Path. Bact.*, 63, 3, pp. 409–416, 2 pl., 1 fig., 1951.

A general clinical and pathological description of pulmonary aspergillosis (*Aspergillus fumigatus*) is supplemented by a report on a case of the primary type discovered incidentally at the post-mortem examination on a 50-year-old male patient at the Ashford Hospital, Middlesex. The fungus was cultured on Sabouraud's medium.

2090. Ainsworth (G. C.) & Rewell (R. E.). **The incidence of aspergillosis in captive wild Birds.**—*J. comp. Path.*, 59, 3, pp. 213–224, 1 pl., 1 fig., 1949.

The gross morbid features of 78 cases of aspergillosis in captive wild birds at the Zoological Gardens, London, are tabulated and the histological features described. Though earlier accounts stressed a granulomatous type of lesions, a more widespread one without specific histological features appeared to be more common. The lesions almost always occurred in the respiratory system. Of 68 cultures, 45 yielded pure growths of *Aspergillus fumigatus*, three were *A. flavus*, and one was *A. nidulans*. There were no anatomical differences in the disease produced by these organisms, which is essentially one of recently captured aquatic birds.

2091. Gilliam (J. S.) & Vest (S. A.). **Penicillium infection of the urinary tract.**—*J. Urol.*, 65, 3, pp. 484–489, 1 fig., 1951.

A case of a rare infection of the urinary tract by *Penicillium citrinum*, originating 12 years earlier, in a 56-year-old male patient is reported from the University of Virginia Hospital, Charlottesville, Virginia. The fungus grew readily on Sabouraud's media. The symptoms simulated those associated with renal colic. Death occurred elsewhere and cultures taken at the autopsy revealed the pathogen in the bladder and right kidney.

2092. Salvin (S. B.). **Hemolysin from the yeastlike phases of some pathogenic fungi.**—*Proc. Soc. exp. Biol., N.Y.*, 76, 4, pp. 852–854, 1951.

One or more haemolysins (probably a protein or protein-like substance) were demonstrated in soluble extracts prepared from the yeast-like phases of *Histoplasma capsulatum*, *Blastomyces dermatitidis*, *Candida albicans*, and *Cryptococcus neoformans*. Of several erythrocytes tested, those of the hen and guinea-pig were the most readily haemolysed.

2093. Askanazy (C. L.), Barrie (H. J.), & Crookston (J. H.). **Systemic blastomycosis.**—*Canad. Med. Ass. J.*, 65, 1, pp. 55–56, 1 fig., 1951.

Particulars are given of the findings at the autopsy on the case of disseminated blastomycosis (*Blastomyces dermatitidis*) recently reported from Toronto, Ontario, by Drummond and Smith [No. 1862].

2094. Greenwood (R. C.) & Voris (H. C.). **Systemic blastomycosis with spinal cord involvement. Case report.**—*J. Neurosurg.*, 7, 5, pp. 450–454, 5 figs., 1950.

An unusual case of systemic blastomycosis in a 40-year-old female is reported from the Mercy Hospital, Chicago. A difficult problem in differential diagnosis was posed by the clinical manifestations of a localized lesion in the spinal canal on the one hand, and the healed cutaneous blastomycosis without apparent evidence of systemic involvement on the other. The organism isolated by different laboratories was referred to *Blastomyces dermatitidis* and its morphology remained constant on staining with toluidine blue.

2095. Ranier (A.). **Primary laryngeal blastomycosis. A review of the literature and report of a case.**—*Amer. J. clin. Path.*, 21, 5, pp. 444–450, 4 figs., 1951.

A case of primary laryngeal blastomycosis (*Blastomyces dermatitidis*) in a 44-year-old negro patient at the U.S. Marine Hospital, New Orleans, Louisiana, is described, and the six cases previously reported in the English literature on the subject are summarized in tabular form.

2096. Schoenbach (E. B.), Miller (J. M.), & Ginsberg (M.). **Systemic blastomycosis treated with stilbamidine : a preliminary report.**—*J. Amer. med. Ass.*, 146, 14, pp. 1317–1318, 1951.

Excellent results are reported from the Veterans Administration Hospital, Fort Howard, Maryland, in the therapy of advanced systemic North American blastomycosis (*Blastomyces dermatitidis*) in a 33-year-old Indian with two of the aromatic diamidines, stilbamidine [No. 1961] and propamidine. A second patient with generalized blastomycosis has also responded favourably to stilbamidine and marked improvement has been shown by a third, suffering from nocardiosis [*Nocardia* sp.]. It is suggested that the diamidines be given an extensive trial in the treatment of severe yeast-like infections.

2097. Sodaro (J. C.) & White (C. J.). **Blastomycosis en plaque.**—*Urol. cutan. Rev.*, 55, 4, p. 209, 1951.

From Oak Park, Illinois, the authors report an unusual manifestation of cutaneous blastomycosis [*Blastomyces dermatitidis*] in the form of a solid, brownish-red plaque, 2 by 1 in., on the forehead of a 52-year-old woman. The diagnosis (made by histological examination) was confirmed by Dr. F. S. Weidman. The lesion disappeared completely after six weeks' oral administration of potassium iodide.

2098. Reiss (F.) & Caroline (Leona). **The metabolism of Blastomyces dermatitidis, antagonists to the growth-inhibiting effect of trimeton maleate.**—*Science*, 114, 2949, pp. 15–17, 1951.

In intraperitoneal inoculation experiments on 28 Swiss albino mice at the Bellevue Hospital, New York, trimeton maleate at a daily dosage of 40 mg. per kg. failed either to prevent or cure infection by *Blastomyces dermatitidis* [No. 1819], whereas previous results indicated that the substance completely inhibited growth of the fungus at a concentration 0·015 M. In further experiments the addition of cations of various metals showed appreciable reversal of the growth inhibition by trimeton maleate.

2099. Andleigh (H.). **Blastomycosis in India. Report of a case.**—*Indian J. med. Sci.*, 5, 3, pp. 59–62, 7 figs., 1 map, 1951.

A case of (?) primary cutaneous blastomycosis, involving the inner side of the left thigh in a 44-year-old male Hindu, is reported from the S.M.S. Medical College, Jaipur. The morphology of the cells of the causal organism, which was cultured on Sabouraud's medium and blood agar, closely resembled that of *Blastomyces dermatitidis*. The patient reacted positively to intradermal tests with blastomycin. This is stated to be the first record of blastomycosis in India.

2100. Ueberschär. **Blastomykose Buschke-Busse mit prädiabetischem Zustand.** [Blastomycosis Buschke-Busse with pre-diabetic status.]—*Arch. Derm. Syph., Berl.*, 191, pp. 475–476, 1950.

An etiological relationship between blastomycosis purulenta profunda [*Cryptococcus neoformans*] and incipient diabetes was demonstrated in a female

patient of the author at Karlsruhe, Germany. Both conditions were simultaneously relieved by insulin therapy and developed again on its discontinuance.

2101. Rizzi (V.J.) **Blastomycosis acneoides conglobata (a proposito di un caso clinico).** [Blastomycosis acneoides conglobata (with reference to a clinical case).]—*Arch. ital. Derm.*, 23, 5, pp. 321–337, 6 figs., 1950.

A full description, with references to the relevant literature, is given of a case of blastomycosis acneoides conglobata [? *Cryptococcus neoformans*] of seven years' standing in a 36-year-old male patient at the Dermatological Clinic of the University of Pavia. The lesions contained numerous blastomycetes, but all attempts at culture gave negative results.

2102. González Ochoa (A.), Bojalil Jaber (L.), & Soto Pacheco (R.). **Acción estimulante de las sulfonamidas-cobre y de la penicilina sobre el desarrollo de Cryptococcus neoformans y Sporotrichum schencki, respectivamente.** [Stimulatory action of the copper sulphonamides and of penicillin on the development of *Cryptococcus neoformans* and *Sporotrichum schencki*, respectively.]—*Rev. Soc. mex. Hist. nat.*, 11, 1–4, pp. 35–41, 3 graphs, 1950. [English summary.]

In *in vitro* experiments at the Institute of Hygiene and Tropical Diseases, Mexico, D.F., copper sulphonamides stimulated the development of *Cryptococcus neoformans* on 2 per cent. Sabouraud's dextrose agar, while penicillin acted similarly on *Sporotrichum schencki* cultured in pus from gummatous lesions without addition of nutrients.

2103. Hoffmeister (W.). **Die Torulopsis neoformans-Infektion. Beitrag zur Differentialdiagnose der Meningoencephalopathie, Lymphogranulomatose and pneumonischen Infiltrationen.** [*Torulopsis neoformans* infection. Contribution to the differential diagnosis of meningoencephalopathy, lymphogranulomatosis, and pneumonic infiltrations.]—*Klin. Wschr.*, 29, 17–18, pp. 301–307, 4 figs., 1951.

This is a useful, fully documented survey of the literature on the chronic or subacute, systemic disease caused by *Cryptococcus neoformans*.

2104. Collins (V. P.). **Bone involvement in cryptococcosis (torulosis).**—*Amer. J. Roentgenol.*, 63, 1, pp. 102–112, 8 figs., 1950.

A review of over 200 cases of cryptococcosis (*Cryptococcus neoformans*) recorded in the literature on the subject disclosed 17 instances of bone involvement [cf. next entry]. Three additional cases of the same nature are reported, two from the Presbyterian Hospital, New York (female aged 27 and male, 54), and one from the Johns Hopkins Hospital, Baltimore, Maryland (20-year-old coloured female).

When multiple the lesions are widely disseminated, tending to involve bony prominences and to be osteolytic, exciting very little bone reaction. The roentgenological aspect of bone involvement due to cryptococcosis is more akin to that associated with blastomycosis (*Blastomyces dermatitidis*) and coccidioidomycosis [*Coccidioides immitis*] than with actinomycosis.

Attention is directed to the reported cases of cryptococcosis presenting histopathological characteristics indicative of Hodgkin's disease and sarcoid.

2105. Wiener (M. F.). **Generalized torulosis with bone involvement.**—*Arch. intern. Med.*, 87, 5, pp. 713–726, 5 figs., 1951.

A case of generalized torulosis (*Cryptococcus neoformans*) with osseous invasion in a 53-year-old patient is reported from the Veterans Administration

Hospital, Miami Beach, Florida. The diagnosis was based on microscopic study at necropsy and direct smear of the meninges. The relevant literature is briefly surveyed and the mycological features, portal of entry, pathological aspects, diagnosis, treatment, and prognosis of the disease are reviewed.

2106. Mosberg (W. H.) & Alvarez-De Choudens (J. A.). **Torulosis of the central nervous system. Effect of changes in pH and temperature on growth of the causal organism.**—*Lancet*, 260, 6667, pp. 1259–1260, 4 graphs, 1951.

The results of cultural studies on a strain of *Cryptococcus neoformans* isolated from the cerebrospinal fluid of a patient at the University Hospital, Baltimore, Maryland [Nos. 1629, 1634], indicated that pH is an important factor in the growth of the pathogen. Thus, the earliest hours at which cultures exposed to a temperature of 40° C. showed no growth were 144 at pH 6·52 and 6·98, 120 at 7·32, 72 at 8·2, and 48 at 8·72. These data point to the possibility of a combination of hyperthermia and alkalinization in the treatment of human torulosis.

2107. Evans (E. E.) & Mehl (J. W.). **A qualitative analysis of capsular polysaccharides from Cryptococcus neoformans by filter paper chromatography.**—*Science*, 114, 2949, pp. 10–11, 1951.

At the University of Southern California, School of Medicine, Los Angeles, the technique of filter paper chromatography (*Biochem. J.*, 38, p. 224, 1944) was applied to a qualitative analysis of the capsular polysaccharide isolated from *Cryptococcus neoformans* [Nos. 1627, 1871, 1873, cf. 2111], using a representative sample from each of the three antigenic types (A, B, and C). By this means the hydrolysates of polysaccharides from each of the three types were shown to be qualitatively similar.

2108. Fisher (A. M.). **The clinical picture associated with infections due to Cryptococcus neoformans (Torula histolytica). Report of three cases with some experimental studies.**—*Bull. Johns Hopkins Hosp.*, 86, 6, pp. 383–414, 6 figs., 1950.

Three cases of cryptococcosis (*Cryptococcus neoformans*) are reported from the Johns Hopkins Hospital, Baltimore, Maryland. In the first, a 39-year-old male, infection was apparently localized, involving a pelvic bone and the sternal region. Real benefit seems to have been derived in this case from surgical drainage of the bone lesion and iodide therapy. No treatment modified the progressive course of the disease in the other two patients, a 20-year-old coloured female with generalized infection associated with widespread sarcoidosis, and a seven-year-old boy suffering from meningo-encephalitis. The results of chemotherapeutic tests on mice with propanidine, aureomycin, penicillin, actidione, and sulphadiazine were uniformly negative.

The commonly fatal termination of cryptococcosis is attributed to poor antibody response, the protective effect on the virulent cryptococci of their thick capsular and extra-capsular coating, and the inefficient phagocytic reactions of the host cells.

2109. Globus (J. H.), Gang (K. M.), & Bergman (P. S.). **Torula meningoencephalitis.**—*J. Neuropath. exp. Neurol.*, 10, 2, pp. 208–228, 11 figs., 1951.

Two cases of meningo-encephalitis caused by *Cryptococcus neoformans*, one in a 20-year-old female and the other in a 40-year-old male, are fully reported, with the autopsy findings, from the Mount Sinai Hospital, New York. In the succeeding discussion difficulties of diagnosis are emphasized and effective diagnostic steps are listed; the biological characters of the pathogen and the

histopathologic alterations which it induces in the nervous system are described; and therapeutic measures are briefly surveyed and evaluated.

2110. Cook (A. W.). **Cryptococcus (Torula) meningitis. Report of two cases.**—*J. Amer. med. Ass.*, 146, 12, pp. 1105–1107, 2 figs., 1951.

Two fatal cases of meningitis caused by *Cryptococcus hominis* [*C. neoformans*] are reported from the Brooklyn Hospital, New York, one in a 58-year-old female and the other in a 19-year-old negro male. In the former case the fungus was isolated before death from the cerebrospinal fluid and cultured on glycerin veal and Sabouraud's agar; it proved to be resistant to 100 Oxford units of penicillin and 1,000 units of streptomycin.

2111. Evans (E. E.) & Kessel (J. F.). **The antigenic composition of Cryptococcus neoformans. II. Serologic studies with the capsular polysaccharide.**—*J. Immunol.*, 67, 2, pp. 109–114, 1951.

Methods for the isolation and purification of the capsular polysaccharide of *Cryptococcus neoformans* at the School of Medicine, University of Southern California, Los Angeles [No. 1637, cf. 2107], are described. The results of studies on the antigenic relationships among the capsular polysaccharides of types A, B, and C of the fungus by means of the precipitin test were analogous to those obtained previously with the agglutination and capsular reactions. Absorption of antiserum with S of homologous type removed antibodies producing the 'capsular reaction' with intact cells. Cross-reacting antibodies were removed from antiserum by absorption with heterologous S.

2112. Linell (B.), Magnusson (B.), & Nordén (Å.). **Cryptococcos. (Torulos.) Ett fall med symptom från hud, lungor och centrala nervensystemet.** [Cryptococcosis. (Torulosis.) A case with symptoms involving the skin, lungs, and central nervous system.]—*Nord. Med.*, 46, 32, pp. 1195–1199, 5 figs., 1951. [English summary.]

Cryptococcus neoformans was isolated on Sabouraud's agar from the facial lesions and gastric lavage and spinal fluids of a 57-year-old male patient at the General Hospital, Malmö, Sweden, this being the first report of the disease for the country. No benefit was derived from the administration of sulpha drugs over a period of five months, combined for ten days with terramycin.

2113. Drouhet (E.) & Couteau (Mlle M.). **Sur les variations sectorielles des colonies de Torulopsis neoformans.** [On the sectorial variations of *Torulopsis neoformans* colonies.]—*Ann. Inst. Pasteur*, 80, 5, pp. 456–457, 1951.

A study was made of the structural organization of the smooth and mucous sectors in mixed colonies of *Torulopsis* [*Cryptococcus*] *neoformans* [Nos. 1871, 1873]. The former were found to consist of masses of small, very slightly capsulated, densely aggregated cells, and the latter of sparse cells surrounded by a capsule. Those features are reflected in the macroscopic aspect of the two types of colonies—opaque and of creamy consistency in the smooth, transparent and viscous in the mucous. The smooth sectors stain more vividly than the mucous with Gram's and Giemsa's reagents. The application of Feulgen's stain to the mucous sectors reveals cells measuring 8 μ in diameter, consisting of a faintly purple-tinted body in a pink cytoplasm, which are probably nuclei.

2114. Negroni (P.) & Briz de Negroni (C.). **Estudios sobre el Cryptococcus neoformans (Sanfelice). II. Aspecto micromorfológico y citología.** [Studies on

Cryptococcus neoformans (Sanfelice). II. Micromorphological aspect and cytology.]—*An. Soc. cient. argent.*, 141, 2, pp. 71–76, 1 fig., 1951. [English summary.]

A mineral medium containing thiamin brings into prominence the following microscopical characters of *Cryptococcus neoformans*. Budding occurs at an 'open growing point' or 'meristematic point' furnished with a short neck and collar. The daughter cells are meristematic buds but not true conidia, since they continue their vegetative development. In adult cells (of 5- to 16-day-old cultures) reproductive energy appears to decline, the membrane thickens, and each escaping bud leaves a new collar inside the one before.

Resting cells of *C. neoformans* present the 'moulting' phenomenon. Regenerated cells slip from their membranes, which remain attached to one end as empty sheaths. Endospore formation was not observed. The cells are uninucleate and the other cytological characters are typical of the yeast-like fungi.

2115. Pio da Silva (M.). **La blastomycose. Son diagnostique par la ponction ganglionnaire.** [Blastomycosis. Its diagnosis by means of ganglionary puncture.]—*Sang*, 21, 6, pp. 537–541, 3 figs., 1950.

From the Escola Paulista de Medicina, São Paulo, Brazil, the author describes a method of ganglionary puncture which is stated to give uniformly dependable results in the diagnosis of Brazilian blastomycosis (*Paracoccidioides brasiliensis*).

2116. Mendez Lemaître (A.). **Blastomicosis suramericana y otras micosis en Colombia.** [South American blastomycosis and other mycoses in Colombia.]—*Rev. Hosp. 'La Samaritana', Bogotá*, 1, 4, pp. 3–20, 9 pl., 1950. [*T.D.B.*, 48, 283.]

The author gives full details of eight cases of South American blastomycosis [*Paracoccidioides brasiliensis*], five of chromoblastomycosis (*Phialophora pedrosoi*), and two of rhinosporidiosis [*Rhinosporidium seeberi*] in Colombia, including the first of South American blastomycosis and of rhinosporidiosis to be recorded for the country.

2117. Burns (R. E.). **Chromoblastomycosis in a Canadian Airman serving in Ceylon.**—*Canad. med. Ass. J.*, 63, 6, pp. 595–596, 4 figs., 1950.

Phialophora verrucosa was isolated from a nondescript granulomatous lesion on the left leg of a 54-year-old patient of the author's at Victoria, British Columbia, who had served as an airman in the Canadian Army in Ceylon from 1942 to 1944. This is believed to be the first record of the disease in the Indian area.

2118. Heinsius (E.). **Metastatische Ophthalmie durch Blastomyzeten.** [Metastatic ophthalmia caused by Blastomycetes.]—*Klin. Mbl. Augenheilk.*, 117, 2, pp. 136–141, 2 figs., 1950.

A case of metastatic ophthalmia caused by [unspecified] yeast fungi in a 52-year-old male patient at the Heidberg General Hospital, Hamburg-Langenhorn, is described and discussed in connexion with a review of the relevant literature. Only one other case of blastomycosis involving the eyeball is known to the author.

2119. Tucker (H. A.). **Coccidioidin sensitivity on the Isthmus of Panama. Report of tests performed on one thousand patients.**—*Amer. Rev. Tuberc.*, 63, 6, pp. 657–666, 1951. [Spanish and French summaries.]

Intradermal tests with 1 in 100 coccidioidin (*Coccidioides immitis* antigen

on 1,000 patients native to the Panama Canal Zone at the Colon Hospital, Cristobal, induced positive and doubtful reactions in eight (0·8 per cent.) and eight, respectively. Histoplasmin (*Histoplasma capsulatum* antigen) injections at the same strength elicited positive reactions from 387 out of 613 patients (38·7 per cent.), including seven of the coccidioidin-positive, the response of the eighth being doubtful. Of the 241 persons tested with 1 in 1,000 blastomycin (*Blastomyces dermatitidis* antigen), including six positive coccidioidin reactors, four responded positively.

C. immitis has not been demonstrated in the Canal Zone, and these results are interpreted as being consistent with its absence. The other two fungi have also not been detected in the region, and the positive and doubtful reactions in this series are attributed to previous sensitization by some antigen closely related to, or an integral part of, the hypothetical common antigen of the *Coccidioides—Blastomyces—Histoplasma* group of fungi.

2120. Niño (F. L.) & Ferrada Urzúa (L.). **Contribución al estudio de la endemia de coccidioidomicosis en la República Argentina.** [Contribution to the study of the endemiology of coccidioidomycosis in the Argentine Republic.]—*Prensa méd. argent.*, 37, 48, pp. 2920–2929, 2 maps, 1950.

Of a total of 883 adults from different parts of Argentina tested for hypersensitivity to coccidioidin (*Coccidioides immitis* antigen), 24 (2·88 per cent.) reacted positively, of whom 17 (3·49 per cent.) were males and 7 (2·01 per cent.) females. The disease was found to be endemic over a wide area, with three main foci of infection, one in the north (Chaco), a second in the central provinces of Tucumán, Catamarca, Córdoba, Santiago del Estero, and San Luis, and a third in the south (Rio Negro).

2121. Rosen (E.) & Belber (J. P.). **Coccidioidal meningitis of long duration: report of a case of four years and eight months' duration, with necropsy findings.**—*Ann. intern. Med.*, 34, 3, pp. 796–809, 2 figs., 1951.

A case report of coccidioidal meningitis (*Coccidioides immitis*) of four years and eight months' duration (the longest recorded for this disease) in a 53-year-old patient is presented from the Veterans Administration Hospital, Oakland, California. The correct diagnosis was not established until the fifth year of the illness, despite intensive study during six previous periods of residence in four different hospitals.

2122. Winn (W. A.). **Pulmonary mycoses—coccidioidomycosis and pulmonary cavitation. A study of ninety-two cases.**—*Arch. intern. Med.*, 87, 4, pp. 541–550, 10 figs., 1951.

Of the exogenous mycoses affecting the lungs, coccidioidomycosis (*Coccidioides immitis*) is the most important in the western United States. The differences between primary and secondary coccidioidal disease are discussed. The author emphasizes the importance of recognizing the residual pulmonary changes following primary coccidioidomycosis, and especially of differentiating them from the lesions of pulmonary tuberculosis and neoplasia.

Pulmonary cavitation, residual to primary coccidiomycosis, closed spontaneously in 25 per cent. of a group of 92 persons. In 10 per cent. such cavitation has persisted for years without harm to the patient. In 6 per cent. the cavities filled and formed solid solitary foci, and in 2 per cent. they ruptured and produced spontaneous pneumothorax. Because of frequent haemoptysis or increasing size, one-third of the cases required treatment by simple pulmonary collapse procedures, while layer cavities demanded thoracic surgical intervention. Fourteen instances of pulmonary resection are reported in this series.

During more than ten years of observation of coccidioidomycosis in the San Joaquin Valley of California, the author has seen no evidence of transmission of infection from one person to another.

This paper, read before the Section on Diseases of the Chest at the 99th Annual Session of the American Medical Association, San Francisco, on 28th June, 1950, was followed by a discussion.

2123. Fraser (C. G.), Monroe (S. E.), & O'Hare (J. E.). **Coccidioidomycosis and tuberculosis in the same bones. A case report.**—*Ann. Surg.*, 133, 1, pp. 116–122, 7 figs., 1951.

A case of tuberculosis and disseminated coccidioidomycosis (*Coccidioides immitis*) in the same bones (right calcaneus and tibia) of a 53-year-old patient at the Veterans Administration Hospital, Tucson, Arizona, is presented in the belief that it is the first of its kind on record. After two 42-day courses of streptomycin at a dosage of 1 gm. daily, no further evidence of tuberculosis could be demonstrated in the lesions, and at the time of writing the patient had made a steady improvement for more than a year, notwithstanding the continued presence of the pure coccidioidal infection, which was treated primarily by rest in splints.

2124. Wormley (L. C.), Manoil (L.), & Rosenthal (M.). **Coccidioidomycosis of female adnexa.**—*Amer. J. Surg.*, n.s., 80, 7, pp. 958–960, 2 figs., 1950.

A case (believed to be only the third on record) of coccidioidomycosis (*Coccidioides immitis*) of the fallopian tube and ovary in a 23-year-old patient is reported from St. Monica's Hospital, Phoenix, Arizona. An apparently complete cure was effected by surgical intervention.

2125. Vaughan (J. E.) & Ramirez (H.). **Coccidioidomycosis as a complication of pregnancy.**—*Calif. Med.*, 74, 2, pp. 121–125, 1951.

Records of 33 cases of coccidioidomycosis [*Coccidioides immitis*] occurring in pregnancy during the period from 1942 to 1949 in Kern County, California, are presented. In this group the incidence of dissemination was considerably greater than that reported in all cases of the disease, reaching a maximum in patients contracting infection at a late stage of gestation, except among the negroes, in all of whom dissemination took place irrespective of the time of onset. A tendency to abortion was the chief complication when the illness began during the first three months, while a very high incidence of premature labour accompanied its appearance in the last three. None of the infants showed evidence of congenital infection, but in one case invasion of the placenta by coccidioidal spherules was observed.

2126. Cohen (R.), & Miller (L.). **Inhibiting concentrations of chloromycetin against Coccidioides immitis.**—*Ann. west. Med. Surg.*, 4, 7, pp. 342–343, 1950.

In *in vitro* tests at the Kern County General Hospital, Bakesfield, California, blood agar and bactotrypose agar slants of *Coccidioides immitis* exhibited a measure of sensitivity to chloromycetin [chloramphenicol] at concentrations of 1,000 and 2,000 μgm. per ml. At the latter strength the small, discrete colonies failed to spread and become confluent as in the control slants and those to which lower concentrations of the drug were added.

2127. Beadenkopf (W. G.) & Loosli (C. G.). **Histoplasmosis, tuberculosis and coccidioidomycosis.**—*J. Amer. med. Ass.*, 146, 7, pp. 621–624, 1951.

The similarities and dissimilarities in the epidemiology and symptomatology of histoplasmosis (*Histoplasma capsulatum*), tuberculosis, and coccidioidomycosis (*Coccidioides* [*immitis*]) are discussed in the light of 39 contributions to

the relevant literature. In general, the three diseases present many analogies. Each affects many persons without discernible symptoms beyond skin sensitivity development; each tends to involve the lungs, producing either acute or chronic infiltrates frequently indistinguishable roentgenologically; and each has a relatively uncommon form consisting of a fatal disseminated infection. No comparative data concerning the course and fatality rates of the three types of infection are available. Notwithstanding certain fundamental differences in the epidemiology of histoplasmosis, tuberculosis, and coccidioidomycosis, the above-mentioned similarities are of such importance that all three diseases should be considered in any tuberculosis control programme.

2128. Buonocore (P.). **L'istoplasmosi.** [Histoplasmosis.]—*Pediatria*, 58, 9–10, pp. 792–799, 1950.

This is a useful review and discussion of some important contributions to the literature on various aspects of histoplasmosis (*Histoplasma capsulatum*).

2129. Janbon (M.) & Bertrand (L.). **Histoplasmose viscérale de l'adulte (note préliminaire).** [Visceral histoplasmosis in the adult (preliminary note).]—*Montpellier méd.*, 37–38, 6, pp. 448–455, 1 fig., 1950.

A case of histoplasmosis (*Histoplasma capsulatum*) of the spleen in a 35-year-old female, believed to be the first autochthonous record of the disease in Europe, is reported from Montpellier, France. Death supervened three months after an exploratory laparotomy and some 20 years after the first clinical manifestations, which involved the lungs.

2130. Fréour (P.). **L'histoplasmose.** [Histoplasmosis.]—*J. Méd. Bordeaux*, 128, 5, pp. 529–539, 1951.

In connexion with the recent discovery of histoplasmosis (*Histoplasma capsulatum*) in France [see preceding entry], the writer summarizes from the relevant literature the available information on the history of the disease, its several clinical aspects, diagnosis, and epidemiology.

2131. Roberts (S. E.) & Forman (F. S.). **Histoplasmosis—a deficiency disease.**—*Ann. Otol., &c., St. Louis*, 59, 3, pp. 809–822, 3 figs., 4 diags., 2 graphs, 1950.

In connexion with brief reports on two cases of laryngeal histoplasmosis (*Histoplasma capsulatum*) in male patients, aged 69 and 51, at the University of Kansas Medical Center, the authors present and discuss evidence for their hypothesis that the disease originates in mineral deficiency. Its incidence is highest in those areas of the United States where soil depletion is most extensive and the consumption of sea foods, with their abundant mineral supplies, is lowest.

2132. Fischer (H.), Marks (R.), Wilson (J. E.), & Hathaway (R.). **Histoplasmosis.**—*W. Va med. J.*, 47, 4, pp. 114–119, 8 figs., 1951.

Following a summary of the available information on histoplasmosis (*Histoplasma capsulatum*) based on a bibliography of 20 titles, the writers report a case of the disease in a 21-month-old female infant [No. 1901] at Clarksberg, West Virginia, representing the first record for the State. A histoplasmosis complement-fixation test was positive at a titre of 32. A lowered total serum proteins was noted. All attempts at therapy, including the administration of aureomycin and streptomycin, proved fruitless. The diagnosis was made before death from positive cultures of the faeces, urine, and throat; the fungus also developed from a lymph node taken at autopsy.

2133. Böe (J.), Linden (V.), & Tweit (J.). **Histoplasmin and coccidioidin sensitivity in Norway.**—*Acta med. scand.*, 139, 3, pp. 196–202, 1 graph, 1951.

At the University Clinic, Bergen, Norway, 1,074 persons, comprising 935 hospital patients and 139 doctors, nurses, and medical students, were examined for sensitivity to histoplasmin and coccidiodin (antigens of *Histoplasma capsulatum* and *Coccidioides immitis*, respectively). A total of 27 persons (2·5 per cent.) reacted positively to histoplasmin alone, three (0·3 per cent.), including one ex-resident of California, to coccidioidin alone, and 23 (22 per cent.) to both antigens. None of the positive reactors showed any sign of pulmonary or other disease suggestive of mycotic infection. The relatively large number of positive reactors to both antigens points to the occurrence of cross-reactions due to systemic infections with one or more unknown, immunologically closely related fungi, possibly *Geotrichum*.

2134. Matos (A. V.). **Sensibilidade cutânea à histoplasmina em 793 casos observados.** [Cutaneous sensitivity to histoplasmin in 793 cases observed.]—*Arch. Inst. brasil. Invest. Tuberc.*, 9, 2, pp. 138–163, 3 graphs, 1950. [Abs. in *Intern. Med.* (*Excerp. med.*, Sect. VI), 5, 7, p. 841, 1951.]

At the Brazilian Institute for Tuberculosis Research the reaction to histoplasmin was found to depend on the concentration used, being positive in 21·9 per cent. of the cases with a dilution of 1 in 100, 13 per cent. with 1 in 500, and 2·6 per cent. with 1 in 1,000. Of the 793 patients under observation, 16 harboured small calcified nodules; only one of these failed to respond to tuberculin and reacted positively to histoplasmin (1 in 100).

2135. Prior (J. A.) & Cole (C. R.). **Studies on the communicability of histoplasmosis.**—*Amer. Rev. Tuberc.*, 63, 5, pp. 538–546, 1951. [Spanish and French summaries.]

At the Department of Veterinary Pathology, Ohio State University, Columbus, three out of five dogs developed histoplasmosis (*Histoplasma capsulatum*) two to five months after the beginning of exposure to contact with eight dogs suffering from spontaneous infection by the fungus. Each of the three dogs contracting the disease had been negative to a histoplasmin skin test [Nos. 1695, 1696] before exposure. The remaining two dogs, which were exposed to nine with artificially induced histoplasmosis as well as to the eight naturally infected, remained healthy, as also did five occupying a kennel with a dog found to be harbouring the fungus in an active form. No symptoms of histoplasmosis were observed in any of the 25 human household contacts of the diseased dogs, or in the eight laboratory workers (including five with positive skin reactions) exposed to infection for prolonged periods. Nevertheless, the dog should be regarded as a potentially dangerous source of histoplasmosis, since the pathogen is known to be disseminable by means of the sputum, saliva, and excreta.

2136. Kirsch (E.). **Beobachtung einer Histoplasmose mit Sektionsbefund.** [Observation of a histoplasmosis with autopsy finding.]—*Z. Tropenmed. Parasitol.*, 3, 1, pp. 86–93, 5 figs., 1951. [English summary.]

A case of histoplasmosis (*Histoplasma capsulatum*) in a 62-year-old male, 32 years resident in Indonesia [No. 1394], is reported from the General Hospital, Hamburg-Rissen. The illness developed 3½ years after the patient's return to Germany and was accompanied by fever, chills, loss of weight, and swelling of the spleen and liver. The post-mortem examination revealed necrotic foci, resembling those of tuberculosis, in the kidneys and spleen, while the adrenal glands had been transformed into necrotic tumours. The fungus,

enclosed in large cells bordering the necroses, was detected in abundance under the microscope.

Since *H. capsulatum* does not occur in Europe, it is presumably capable of living as a parasite in the human system for up to ten years, as in the one previous case recorded in Germany by Schultz (*Verh. dtsch. path. Ges.*, 30, 1937).

2137. MacKinnon (J. E.) & Gurri (J.). **La cápsula de Histoplasma capsulatum coloreada con el carmín de Best.** [The capsule of *Histoplasma capsulatum* stained with Best's carmine.]—*An. Fac. Med. Montevideo*, 35, 9, pp. 1191–1194, 6 figs., 1950. [English summary.]

Histoplasma capsulatum in experimentally infected mice was studied in tissue sections stained with Best's carmine [cf. No. 1641]. Between the stained capsule or membrane and the cytoplasm lies a well-defined clear zone, while a similar zone surrounding the capsule resembles a vacuole in the parasitized cell. The capsule is very resistant, appearing as a red circle round the dead fungus cells emptied of their contents.

2138. Randall (C. C.) & McVickar (D. L.). **Histoplasma capsulatum in tissue culture.**—*Proc. Soc. exp. Biol., N.Y.*, 77, 1, pp. 150–152, 3 figs., 1951.

A study at the Vanderbilt University School of Medicine, Nashville, Tennessee, of chick embryo and horse placental tissue, grown in tissue culture with *Histoplasma capsulatum* by the cover-glass method, revealed the presence of yeast cells of the fungus in the fibroblasts of the outgrowth. In this connexion it is of interest to note that sections of infected tissues from systemic histoplasmosis rarely, if ever, show yeast cells in fibroblasts.

2139. Kligman (A. M.) & Baldridge (G. D.). **Morphology of Sporotrichum schenckii and Histoplasma capsulatum in tissue.**—*Arch. Path.*, 51, 6, pp. 567–574, 2 figs., 1951.

At the School of Medicine, University of Pennsylvania, Philadelphia, chick embryo, mouse, and human tissue infected by *Histoplasma capsulatum* and *Sporotrichum schencki* were studied with the haematoxylin-eosin and periodic acid-Schiff (Hotchkiss-McManus) stains [No. 1824]. The 'capsules' observed in sections stained with the former reagent could not be demonstrated in those treated by the latter, more definitive technique. The results of the study indicated that the so-called 'capsules' were actually artefacts produced by plasmolysis of the cytoplasm due to fixation.

The 'Quellung' reaction described by Neill *et al.* [No. 1358] in connexion with *S. schencki* could not be verified with either of the fungi in the present investigations, and examination under the electron microscope likewise failed to reveal capsules.

2140. Pillsbury (D. M.) & Kligman (A. M.). **A new histochemical tool for the definitive diagnosis of fungus infections.**—*Trans. N.Y. Acad. Sci.*, Ser. II, 13, 4, pp. 145–148, 1951.

Full directions are given for the application of the periodic acid-Schiff (Hotchkiss-McManus) stain to the diagnosis of fungal infections. The method has proved particularly valuable for the detection of systemic mycoses, and it is apparent from preliminary studies that many previous concepts of the morphology of these organisms in tissue will require revision in the light of further knowledge. For instance, the supposed 'capsules' of *Histoplasma capsulatum* [Nos. 1676, 2131] and *Sporotrichum schencki* are recognized as artefacts by the new technique. The fact that the large capsules of *Cryptococcus neoformans* [Nos. 1871, 1873] react to the Schiff reagent supports the view that they are composed of hyaluronic acid.

2141. Hansen (A. E.) & Beene (Mary L.). **Sensitivity studies in vitro with Histoplasma capsulatum to various potential therapeutic agents.**—*Proc. Soc. exp. Biol., N.Y.*, 77, 2, pp. 365–366, 1951.

At the University of Texas, Galveston, ethyl vanillate at a concentration of 50 mg. per cent. was the most promising of a number of potential therapeutic agents in tests on *Histoplasma capsulatum* isolated on blood agar from the bone marrow of a female infant who succumbed to histoplasmosis.

2142. Christie (A.), Middleton (J. G.), Peterson (J. C.), & McVickar (D. L.). **Treatment of disseminated histoplasmosis with ethyl vanillate.**—*Pediatrics*, 7, 1, pp. 7–18, 1 diag., 3 graphs, 1951. [Spanish summary.]

Ethyl vanillate (ethyl 4-hydroxy-3-methoxy benzoate), a by-product of the sulphite pulp manufacturing process, has been found to inhibit the growth of various micro-organisms concerned in the spoilage of foodstuffs (*Food Industr.*, 17, p. 1458, 1945). Of 12 infants with disseminated histoplasmosis (*Histoplasma capsulatum*) [No. 1398], who were treated with the drug at the Vanderbilt University Hospital, Nashville, Tennessee, five were alive and apparently well at the time of writing, an experience not previously encountered or reported in the literature.

2143. Campbell (Charlotte C.) & Saslaw (S.). **Atabrine therapy of Histoplasma infections in Mice.**—*Publ. Hlth. Rep., Wash.*, 66, 18, pp. 570–577, 1 graph, 1951.

Atabrine (quinacrine hydrochloride) at a concentration of 0·15 mg. per ml. inhibited the growth of *Histoplasma capsulatum in vitro* [cf. No. 1121]. Mice experimentally infected with the yeast phase of the fungus [cf. No. 1692] were given daily intraperitoneal injections of the drug at dosages ranging from 0·075 to 0·75 mg. for 30 consecutive days. The survival rates of the animals in the groups receiving 0·6 and 0·75 mg. daily were 58·9 and 71·9 per cent., respectively, as compared with 26·1 and 33·3 per cent. in the corresponding control groups. When the administration of atabrine (at 0·6 mg.) was withheld for a week following inoculation, the mortality rates were approximately equal for both treated and untreated mice. The fungus was isolated from the spleens of both treated and untreated animals, indicating that the effect of atabrine is suppressive rather than lethal. The results of these experiments suggest the trial of the drug in the therapy of human histoplasmosis.

2144. Bamatter (F.) & Babaïantz (L.). **Les aspects radiologiques de la toxoplasmose et de l'histoplasmose (résumé).** [The radiological aspects of toxoplasmosis and histoplasmosis (summary).]—*J. Radiol. Électrol.*, 31, 7–8, pp. 423–424, 1950.

Attention is drawn to certain parallels existing between toxoplasmosis and histoplasmosis [*Histoplasma capsulatum*], notwithstanding the divergent etiology and organotropism of the two diseases. The detection by means of radiography of pulmonary lesions in histoplasmosis has revolutionized, at any rate in the United States, previous concepts of pulmonary calcifications, which were formerly regarded as essentially tuberculous [Nos. 1900, 1917, 1923, 1924]. Another tubercular manifestation simulated clinically and radiologically by histoplasmosis, but distinguishable by the histoplasmin and tuberculin tests, is bacillary arthritis.

2145. Ajello (L.) & Zeidberg (L. D.). **Isolation of Histoplasma capsulatum and Allescheria boydii from soil.**—*Science*, 113, 2945, pp. 662–663, 1951.

After pointing out that in skin-testing surveys in Williamson County, Tennessee, over 70 per cent. of the individuals tested with histoplasmin gave a positive reaction, the authors report the examination of 101 soil samples from 24 local farms. Sample 22C, collected on 18th July, 1950, yielded a heavily

sporulating strain of *Histoplasma capsulatum*, which was recovered from three out of four mice. This is the first isolation of the fungus from any source in the county.

In addition, from soil samples 8E and 23E, collected on 6th and 18th July, 1950, respectively, two strains of *Allescheria boydii* [Nos. 1934 to 1937] were repeatedly isolated. These soil isolations represent the first recovery of this fungus from an extra-human source.

2146. Urso (B.). **A note on experimental bronchomoniliasis.**—*J. trop. Med.* (*Hyg.*), 54, 5, pp. 94–98, 4 figs., 1951.

Details are given of the author's successful experiments at the University Hospital for Tropical Diseases, Rome, in the reproduction of bronchomoniliasis in laboratory animals by insufflation and instillation into the nostrils of emulsions of *Monilia* [*Candida*] *tropicalis*. The classical anatomopathological condition was represented in all its phases (bronchitis, bronchopneumonitis, peribronchitis, and bronchiectasis). The fungal cells and epithelioid element were present inside the blood vessels and bronchi, invading all the bronchial walls and altering the normal alveolar structure. Where degeneration prevailed there was unlimited caseation, while proliferation evoked a striking reaction, either infiltrative or proliferative.

2147. Bothén (N. F.). **The Roentgen picture in cases of lung mycosis.**—*Acta radiol., Stockh.*, 36, 1, pp. 35–46, 9 figs., 1951. [German and French summaries.]

Three cases of pulmonary moniliasis are reported from St. Erik's Hospital, Stockholm, Sweden. In the first, a 51-year-old male, infection by *Candida albicans* was contacted while threshing [No. 1711]; in the second, a 50-year-old male, the same fungus was present in a chronic, malignant form; while in the third, a 57-year-old female, intensive antibiotic treatment (with sulpha drugs and penicillin) for a condition simulating pneumonia is believed to have contributed to the establishment of infection by a fungus morphologically similar to *Candida*. The changes demonstrable by X-rays in pulmonary mycoses are discussed, with special reference to the difficulties of differential diagnosis.

2148. Oblath (R. W.), Donath (D. H.), Johnstone (H. G.), & Kerr (W. J.). **Pulmonary moniliasis.**—*Ann. intern. Med.*, 35, 1, pp. 97–116, 2 figs., 1951.

Following a review of the literature on pulmonary moniliasis (*Candida albicans*), the authors present clinical data on six patients at the University of California Hospital, San Francisco, with the post-mortem findings in one case, to illustrate the characteristics of the disease and the difficulties encountered in diagnosis and treatment.

2149. McVeigh (Ilda) & Bell (Emily). **The amino acid and vitamin requirements of Candida albicans Y-475 and Mycoderma vini Y-939.**—*Bull. Torrey bot. Cl.*, 78, 2, pp. 134–144, 5 graphs, 1951.

In nutritional studies at Vanderbilt University, Nashville, Tennessee, *Candida albicans* Y-475 was found to require for maximum growth the addition of 0·005 µgm. per ml. biotin, 0·1 µgm. per ml. thiamin, and 20 µgm. per ml. methionine to a chemically defined medium. Glucose at a concentration of 20 gm. per l. was sufficient for maximum growth.

2150. Moore (M.). **Granulomatous moniliasis resembling blastomycosis (Gilchrist's disease).**—*Mycopathologia*, 4, 3, pp. 272–278, 4 pl., 1948.

A granulomatous lesion of the wrist of a Missouri farmer caused by *Candida albicans* and clinically resembling blastomycosis (Gilchrist's disease) [*Blastomyces dermatitidis*] is described.

2151. Beck (Oleth) & Lacy (Helen). **The effect of certain antibiotics, antimalarial drugs and amebicides on Candida albicans.**—*Tex. Rep. Biol. Med.*, 9, 3, pp. 395–405, 1951.

Of 40 drugs tested *in vitro* at the University of Texas Medical Branch, Galveston, against *Candida albicans*, vioform (5-chloro-7-iodo-8-quinolinol) was found to be the most promising. It further proved clinically effective in two cases of pruritis and proctitis caused by the fungus. Two naphthoquinones, SN5949 and SN5094, and one quinoline, SN167-13, also exerted an inhibitory action on *C. albicans in vitro*.

2152. Korttila (K.). **Bacteriological studies in cases of perforated gastroduodenal ulcer with reference to clinical and pathological aspects.**—*Acta chir. scand.*, *Suppl.* 163, 139 pp., 1 diag., 1 graph, 1951.

This is an exhaustive, fully tabulated survey of the author's 38 cases of perforated gastro-duodenal ulcer at the Surgical Clinic of Turku University, Finland, supplemented by references to the relevant literature, listed in a 12-page bibliography. Among the organisms associated with the disease in this series were *Candida krusei* and *C. albicans*, the former predominating.

2153. Cazzola (D.). **Ricerche e considerazioni clinicosperimentali sulle vulvovaginiti micotiche.** [Clinical-experimental researches and considerations on mycotic forms of vulvovaginitis.]—Reprinted from *Folia gynaec., Pavia*, 43, 5, 40 pp., 5 figs., 1 graph, 1948. [French, English, and German summaries.]

The author describes his studies on the fungal flora of the female genital system in cases of vulvovaginitis [Nos. 1713, 1714] and discusses them in the light of other workers' researches. The use of the calcium and sodium proponiates in these cases gave positive results.

2154. Rauramo (L.). **Some observations on vaginal mycosis.**—*Acta obstetr. gynecol. scand.*, 30, *Suppl.* 7, pp. 484–487, 1950. [French and German summaries.]

Candida albicans was the principal agent of vaginal mycosis [Nos. 1712, 1714] in a series of cases under observation in the University Clinic, Helsinki, Finland, but *C. krusei*, *C. parakrusei*, and species of *Saccharomyces* and *Torula* were also implicated.

2155. Van Assen (E. J. J.). **De behandeling van mycosis vaginae.** [The therapy of mycosis vaginae.]—*Nederl. Tijdschr. Geneesk.*, 94, 51, pp. 3697–3701, 1950. [French, German, and English summaries.]

From the General Hospital, Groningen, Holland, the author reports promising results in the therapy of mycosis vaginae (*Candida albicans*) with a mixture of fatty acids (trichyl). Of the 18 pregnant and 14 non-pregnant patients, 15 and 12, respectively, were cured.

2156. Cohen (R.) & Persky (M.). **Sodium caprylate treatment for thrush.**—*Arch. Pediatr.*, 68, 1, pp. 33–34, 1951.

In 12 cases of thrush [*Candida albicans*] among infants (three days to a year old) at Bakersfield, California, four daily applications of 10 per cent. sodium caprylate [No. 1262] cleared up the condition in an average period of four days without complications or recurrences.

2157. Nickerson (W. J.) & Jillson (O. F.). **Interaction between pathogenic fungi in culture. Considerations on the mechanism of cell division in the dimorphism of pathogenic fungi.**—*Mycopathologia*, 4, 3, pp. 279–283, 1 col pl., 1948.

Mutual antagonism *in vitro* was demonstrated between *Trichophyton rubrum* and *Candida albicans* by means of two-membered pure cultures and culture

filtrates grown singly, the growth of *T. rubrum* being inhibited by the metabolic products of *C. albicans*. The pigment of *T. rubrum* was ascertained to be a pH indicator *in vivo*. While mycelial growth was inhibited, the effect on the yeast phase was slight.

2158. Verona (O.) & Florenzano (G.). **Sopra alcuni aspetti morfologici di Candida pulcherrima (Lindner) Windisch.** [On some morphological aspects of *Candida pulcherrima* (Lindner) Windisch.]—*Mycopathologia*, 4, 3, pp. 268–271, 1 fig., 1948. [English summary.]

Amoeboid structures in blastospores of *Candida pulcherrima* are probably a stage preceding pseudomycelium formation and intermediate between the non-filamentous stage in *Torulopsis* and the filamentous one in *Candida*.

2159. Blaxland (J. D.) & Fincham (I. H.). **Mycosis of the crop (moniliasis) in poultry, with particular reference to serious mortality occurring in young Turkeys.**—*Brit. vet. J.*, 106, 6, pp. 221–231, 8 pl., 1950.

Five outbreaks of moniliasis are reported from the Ministry of Agriculture and Fisheries, Veterinary Laboratory, Weybridge, Surrey, in which *Candida albicans* caused serious mortality among young turkeys [No. 1953] on five farms. The history and course of the disease in four of the outbreaks tended to confirm the opinion of other workers that moniliasis is not entirely due to the presence of the fungus in the crop, but results from its combination with other factors. In a preliminary survey of 55 turkeys and 63 fowls sent for routine post-mortem examination, *C. albicans* was isolated from 14 of the former and nine of the latter, all of which had been suffering from some other pathological condition. A method of isolation and preliminary typing of *C. albicans* is described, and its principal characteristics are compared with those of the non-pathogenic *C. krusei*-like and *Geotrichum* species, also isolated from poultry.

2160. Soliman (K. N.) & Rollinson (D. H. L.). **Mycotic infection of the skin of the Turkey.**—*Vet. Rec.*, 63, 2, pp. 20–24, 8 figs., 1951.

Two organisms were isolated from lesions on a batch of Oxfordshire turkeys suffering from dermatitis of the head and neck, namely, a streptothrix and *Candida albicans*, of which only the former is believed to have been concerned in the etiology of the disease.

2161. Kligman (A. M.). **Improved technic for diagnosing ringworm infections and moniliasis.**—*J. Amer. med. Ass.*, 146, 17, pp. 1563–1565, 2 figs., 1951.

A method is described of staining dermatophytes and the causal organisms of moniliasis in skin scrapings in a solution of 0·1 gm. basic fuchsin, 5 ml. 95 per cent. ethyl alcohol, and 95 ml. water. It was been found superior to the potassium hydroxide technique in diagnostic accuracy.

2162. Kligman (A. M.). **Application of potassium hydroxide to the skin as an aid in the direct examination of scales for fungi.**—*Arch. Derm. Syph., Chicago*, 63, 2, p. 252, 1951.

Directions are given for the application of a 10 per cent. potassium hydroxide solution to the skin as an adjunct to the direct microscopic examination of scrapings from ringworm lesions for hyphal elements.

2163. Janke (D.). **Zum fluorescenzmikroskopischen Nachweis von Pilzen in der menschlichen Hornschicht.** [On the demonstration by fluorescence microscopy of fungi in the human horny layer.]—*Klin. Wschr.*, 29, 17–18, pp. 326–327, 1 fig., 1951.

At the University Skin Clinic, Marburg a.d. Lahn, Germany, the author has

obtained excellent results in the demonstration of fungi in the horny layer by means of fluorescence microscopy, using the Panphot apparatus (Leitz). Hyphae, spores, and yeast cells in 15 per cent. potash lye preparations of squamae (to which are added after heating one drop each of distilled water and acridin orange solution, 1 in 1,000) assume a vivid greenish-yellow coloration against a dark green to bluish background.

2164. Wilson (J. W.). **New ultraviolet generator for use in the diagnosis of tinea capitis by fluorescence.**—*Arch. Derm. Syph., Chicago*, 63, 6, pp. 771–772, 1951.

A new source of ultra-violet radiation, Mineralight SL3660, Ultra Violet Products, Inc., 145 Pasadena Avenue, South Pasadena, California, has been tested and found to offer several advantages over all generators heretofore available for detection of the fluorescence phenomenon in the diagnosis of tinea capitis [*Microsporum*].

2165. Le Garrec (L.). **Note sur l'utilisation du sérum humain comme milieu de culture (cultures de certaines mycoses de Madagascar).** [Note on the utilization of human serum as a culture medium (cultures of certain mycoses of Madagascar).]—*Bull. Soc. Path. exot.*, 43, 7–8, pp. 504–505, 1950.

Human serum maintained at a temperature of 37° C. in hanging drops or slants furnishes an excellent medium for the culture of dermatophytes, and was used with conspicuous success in Madagascar in 1941, when the Pasteur Institute at Antananarivo was unable to supply Sabouraud's agar or other substrata owing to war conditions.

2166. Vacátko (S.). **Interdigitální dermatosy.** [Interdigital dermatoses.]—*Čsl. Derm.*, 25, 7–8, pp. 341–344, 1950. [Abs. in *Dermatol. & Venereol.* (*Excerp. med.*, Sect. XIII), 5, 7, p. 293, 1951.]

Monilia [*Candida*] *albicans* was the predominant agent of dermatoses among miners in a series of investigations at the University Dermatological Clinic, Prague, Czechoslovakia. It was followed by *Epidermophyton inguinale* [*E. floccosum*] and *E.* [*Trichophyton*] *interdigitale*. Important factors in the liability to fungal infection in this group of workers are réductions in the self-sterilizing action in the interdigital spaces of the skin owing to high atmospheric humidity and in the extent of perspiration, involving local alterations in the hydrogen-ion concentration.

2167. Degos (R.) & Rivalier (E.). **Rapport respectif des différentes teignes du cuir chevelu observées pendant les trois dernières années.** [Report on the different ringworms of the scalp observed during the last three years.]—*Bull. Soc. franc. Derm., 1950*, 3, pp. 211–212, 1950.

During the three years prior to the presentation of this paper at a session of the French Dermatological Society on 9th March, 1950, 811 cases of tinea capitis were treated at the École Lailler, Paris, of which 57·5 per cent. were caused by *Microsporum* spp., principally *M. canis*, with *M.* [*Trichophyton*] *ferrugineum* in eight children from the Far East; 16·5 per cent. by *T. crateriforme* [*T. tonsurans*], *T. acuminatum* [*T. sabouraudi*], and *T. violaceum*, the last-named predominating in Jewish children from North Africa temporarily quartered in France; 3 and 3·2 per cent. by microid and megasporous forms, respectively; and 20 per cent. by favus [*T. schoenleini*]. In 1938, according to Pignot and Rabut (*Pr. méd.*, 5th March), the corresponding figures for the same five categories were 51, 29, 1·8, 0·6, and 17·6 per cent., respectively.

2168. Matilla (V.) & Peña-Yáñez (J.). **Estudios sobre la flora dermatofítica de España. I Comunicación : una técnica sistemática para el aislamiento y obtención de cultivos puros.** [Studies on the dermatophytic flora of Spain. Note I: a systematic technique for the isolation and procurement of pure cultures.]—*Arch. Med. exp., Madr.*, 13, 2, pp. 7–15, 1950. [French, English, and German summaries.]

A systematized technique is described for the isolation of dermatophytes whereby fungal and bacterial contamination is reduced to a minimum and pure cultures are obtainable from the outset, without any treatment of the specimens, on standard media. By means of this method 73 cultures were secured from 80 samples collected in different parts of Spain [cf. next entry].

2169. Matilla (V.) & Peña-Yáñez (J.). **Estudios sobre la flora dermatofítica de España. II Comunicación : especies aislados.** [Studies on the dermatophytic flora of Spain. Note II: species isolated.]—*Arch. Med. exp., Madr.*, 13, 2, pp. 17–25, 1950. [French, English, and German summaries.]

From 51 patients, of whom 31 inhabited the city or province of Madrid, 15 the city or province of Cádiz, and the remaining five the provinces of Cáceres, Jaén, and Valladolid, the same number of dermatophytes were isolated [Nos. 1968–9, 2168], distributed as follows: *Trichophyton violaceum* and *T. schoenleini* 13 each, *T. tonsurans* 5, *T. mentagrophytes* 3, *T. sabouraudi* 1, *Microsporum canis* 11, and *M. audouini* 5. Nearly all the cases of *T. violaceum* and *M.* spp. occurred in the city or province of Madrid, while *T. schoenleini* was largely confined to Cádiz and its environs and the other rural areas.

2170. Bettley (F. R.). **Refresher course for general practitioners. Fungus infections of the skin.**—*Brit. med. J., 1951*, 4696, pp. 28–31, 1 fig., 1951.

Essential information is presented on the symptomatology, diagnosis, and therapy of the dermatomycoses, which are becoming increasingly prevalent in Great Britain [No. 2012], roughly in the following order of frequency: tinea pedis, tinea unguium, tinea tonsurans, and pityriasis versicolor [*Malassezia furfur*].

2171. Memmesheimer (A. M.). **Die Bedeutung der Pilzinfektionen für die Berufskrankheiten der Haut.** [The significance of mycotic infections in occupational dermatoses.]—*Ärtzl. Wschr.*, 5, 49, pp. 985–987, 1950.

An analysis of 2,010 recent records relating to arbitration in cases of suspected occupational disease at the Dermatological Clinic of the Municipal Hospitals, Essen, Germany, showed that 818 had been classed as purely occupational, 325 as occupational with secondary mycotic infection, 612 as pure dermatomycoses, and 255 as other skin diseases. Among the groups predominantly affected were painters (53 occupational and secondary mycotic, 33 pure dermatomycoses), miners (47 and 237), metal-workers (38 and 85), locksmiths (24 and 58), and tar-workers (49 and 8, respectively).

The significance of the dermatomycoses in relation to occupational diseases lies in the complications which they introduce into diagnosis and therapy and their aggravation of the social disadvantages inherent in the trades involved.

2172. Mitchell (J. A.). **Ringworm of hands and feet. Historical review.**—*J. Amer. med. Ass.*, 146, 6, pp. 541–546, 1 fig., 1951.

Some important contributions to the subject of ringworm of the hands and feet are reviewed and discussed, beginning with one by the author (with O. S. Ormsby) in 1916.

2173. Benedek (T.). **On the newer trend of classification of dermatophytes.**—*Mycopathologia*, 4, 3, pp. 201–206, 1948.

The author discusses from a critical standpoint various schemes for the classification of the dermatophytes. He considers that Sabouraud's four form genera (*Microsporum*, *Trichophyton*, *Achorion*, and *Epidermophyton*) should be retained.

2174. Pinetti (P.). **Studi sulla biologia dei Dermatomiceti. II. Capacità di assimilazione degli idrati di carbonio ed attività fermentative glicolitiche di alcuni Dermatomiceti.** [Studies on the biology of the Dermatomycetes. II. Capacity for assimilation of carbohydrates and glycolytic fermentative activity of some Dermatomycetes.]—*Mycopathologia*, 4, 3, pp. 222–234, 1948.

A study was made of the carbohydrate metabolism and fermentative activity of 94 species of dermatophytes, including species of *Microsporum*, *Achorion*, and *Epidermophyton*. Details are given of the method used to estimate the ability to assimilate various sugars. The results, tabulated in detail, were of use in differentiating the species.

2175. Austin (Elizabeth). **The use of antihistaminic drugs in the treatment of epidermophytosis of the feet and epidermophytids.**—*Ann. Allergy*, 9, 1, pp. 50–52, 59, 1951.

Fifteen cases of tinea pedis (epidermophytosis) and epidermophytids at Los Angeles, California, responded favourably to the administration of benadryl (betadimethyl amino-hydryl ether hydrochloride), 50 mg. three times daily. Pruritus was relieved in 30 minutes to two days, hyperdrosis was well controlled, and vesicles dried up in two to eleven days. In an equal number of controls the condition cleared up slowly in periods ranging from a fortnight to several months, and only five were free from recurrences of one or another symptom.

2176. Downing (J. G.), Baird (J. W.), & Paci (D.). **Fungous diseases in the Boston area.**—*New Engl. J. Med.*, 243, 15, p. 564, 1950.

The following fungi developed in culture on maize meal agar from tissue removed in 1949 from 829 patients at the Boston (Massachusetts) City Hospital with symptoms suggestive of mycotic infection: *Microsporum lanosum* [*M. canis*] 73, *M. audouini* 54, *Trichophyton rubrum* 17, *Candida albicans* 16, *M*[*alassezia*] *furfur* 10, *T. gypseum* [*T. mentagrophytes*] 8, *Microsporum fulvum* [*M. gypseum*] 5, *Epidermophyton inguinale* [*E. floccosum*] 2, and *T. violaceum* 1, making a total of 186. *C. krusei*, *C. stellatoidea* [Nos. 750, 772, 1939], and *C. tropicalis* were also represented (2, 2, and 1, respectively).

2177. Rankin (J. L.), Dobes (W. L.), Jones (J. W.), & Alden (H. S.). **Ringworm of the scalp: treatment with tetrachloro-para-benzoquinone: clinical and laboratory analysis.**—*Sth. med. J.*, 44, 7, pp. 616–620, 1951.

At the Emory University School of Medicine, Atlanta, Georgia, the growth of cultures of *Microsporum canis*, *Trichophyton rubrum*, and *Epidermophyton floccosum* on Sabouraud's broth was inhibited by tetrachloro-parabenzoquinone (spergon) at a concentration of 0·02 per cent. and that of *M. audouini*, *T. gypseum* [*T. mentagrophytes*], and *T. mentagrophytes* at 0·04 per cent. In *in vivo* experiments on 183 patients, of whom 165 were infected by *M. audouini*, 16 by *M. canis*, and two (brothers) by both species, the compound (in equal parts of cold cream and petrolatum) was active at 3 per cent. but considerably more effective at 20 per cent. in a water-miscible base or 40 per cent. in carbowax 1500, the percentages of cures for the three methods of treatment being 28, 50, and 70, respectively.

2178. Beare (J. M.) & Cheeseman (E. A.). **A localized outbreak of tinea capitis (M. audouini) in Northern Ireland.**—*Arch. Dis. Childh.*, 26, 126, pp. 149–157, 2 graphs, 1951.

An outbreak of tinea capitis (*Microsporum audouini*) at Newtownards, County Down, between June, 1948, and August, 1949, is reported. Among the pupils of five schools, which accounted for 304 of the 368 patients, boys were consistently more liable to infection than girls (27·2 as compared with 7·2 per cent.). The importance of Wood's light in the detection of the complaint is emphasized.

2179. Beare (J. M.) & Cheeseman (E. A.). **Tinea capitis : review of 1004 cases.**—*Brit. J. Derm. Syph.*, 63, 5, pp. 165–186, 2 diags., 1951.

The 1,004 cases of tinea capitis reviewed in this paper were seen in Northern Ireland between May, 1949, and July, 1950, and include children infected in two extensive outbreaks associated with *Microsporum audouini*. The clinical appearances of the ringworm caused by *M. audouini*, *M. canis*, *Trichophyton discoides*, *T. mentagrophytes*, *T. equinum*, and [*T.*] *schoenleini* (favus) are described with particular reference to the differential diagnosis between *M. audouini* and *M. canis* and to the initial site of infection by the former species. An account is given of the treatment of the complaint by means of salicylanilide and X-ray epilation emphasizing the value of the latter in the therapy of *M. audouini* [No. 2181].

2180. Anders (W.). **Die Entwicklung der Mikrosporie in Berlin.** [The development of microsporosis in Berlin.]—*Öffentl. GesundhDienst*, 13, 2, pp. 69–73, 1951.

The first record of microsporosis in Berlin (34 cases) dates from 1909, and the earliest large-scale epidemic followed the 1914 to 1918 war. During the 'thirties and the second world war the city was virtually free from the complaint, but a recrudescence of infection between 1945 and 1950 involved 1,233 children in three areas. The principal reasons for failure to control the spread of infection are pointed out. Epilation is regarded as indispensable for a thorough cure [see preceding entry]; promising results have been obtained by a combination of X-rays and thallium.

2181. Gaethe (G.) & Grieshaber (F. C.). **Tinea capitis : a survey.**—*New Orleans med. surg. J.*, 103, 6, pp. 256–258, 1 graph, 1950.

Microsporum audouini was the predominant agent of tinea capitis in the 134 cases (124 coloured) reviewed at the Charity Hospital, New Orleans, from 1946 to 1949 (111 or 82·8 per cent.). *M. canis* was responsible in seven cases, *M. gypseum* in three, and *Trichophyton gypseum* and *T. sulphureum* in two each. The most common age incidence was six years, and the ratio of males to females was 6:1.

2182. Murrell (T. W.). **Microsporum audouini isolated from a Dog.**—*Arch. Derm. Syph., Chicago*, 63, 5, p. 638, 1951.

Microsporum audouini was isolated from the scalp of a seven-year-old boy at Richmond, Virginia, and later from the circinate eczematous lesions on the jaw of the mother's fox terrier, which is believed to have undoubtedly acted as a carrier of infection.

2183. Marsh (W. C.). **Treatment of tinea capitis with local medication.**—*U.S. Armed Forces med. J.*, 1, 10, pp. 1105–1107, 1950.

At the U.S. Naval Hospital, National Naval Medical Center, Bethesda, Maryland, 32 patients (22 boys and 10 girls, 2 to 11 years old) were treated for tinea capitis between December, 1948, and August, 1949. *Microsporum audouini* was cultured from the infected hairs on Sabouraud's medium in

every case except one, which yielded *M. lanosum* [*M. canis*]. A preparation containing 25 per cent. zinc undecylenate, 2 per cent. undecylenic acid, and 5 per cent. salicylanilide in a carbowax base was applied to the scalp in 31 cases with entirely successful results, the period required for cure ranging from 6 to 20 weeks. As already observed, the occurrence of an inflammatory reaction to the treatment encourages a favourable prognosis [No. 1259].

2184. Carslaw (R. W.). **The treatment of tinea capitis without fungicides.**—*Brit. J. Derm. Syph.*, 63, 1, pp. 16–20, 1951.

From the Victoria Infirmary, Glasgow, the author reports the treatment of 208 cases of tinea capitis in schoolchildren by means of X-ray epilation, with only one relapse. Random culture of material from the 199 cases showing fluorescence under Wood's light yielded *Microsporum audouini* in 41 (89 per cent.) and *M. canis* in five (11 per cent.). Eight of the non-fluorescing cases gave rise to *Trichophyton sulphureum* and one to *T. mentagrophytes*. Return to school took place in an average period of 45 days in the 104 cases excluded on account of the complaint.

Of 22 children (one diagnosed at the age of six weeks) suffering from favus (*T. schoenleini*), 17 were epilated and 12 cured.

2185. Reiss (F.). **Antisporulating effect of asterol dihydrochloride.**—*Trans. N.Y. Acad. Sci.*, Ser. II, 13, 1, pp. 28–31, 1950.

Hairs extracted from children suffering from tinea capitis (*Microsporum audouini*) in New York were sprayed on Petri dishes with a 2 per cent. solution of asterol dihydrochloride [No. 2186] in comparison with decupryl (as available commercially). Whereas one application of asterol dihydrochloride suppressed sporulation, three consecutive daily sprayings with decupryl were necessary to produce a comparable result.

2186. Grunberg (E.), Soo-Hoo (G.), Titsworth (E.), Ressetar (D.), & Schnitzer (R. J.). **Mycological studies with a new benzothiazole with specific activity against dermatophytes.**—*Trans. N.Y. Acad. Sci.*, Ser. II, 13, 1, pp. 22–27, 3 figs., 1 graph, 1950.

A tabulated account is given of *in vitro* experiments at the Chemotherapy Laboratories, Hoffmann-La Roche, Nutley, New Jersey, with one of the approximately 80 derivatives of substituted 2-amino-benzathiazoles which have been studied of recent years. Asterol dihydrochloride, 2-dimethyl-amino-6-(β-diethylaminoethoxy)-benzothiazole dihydrochloride [Nos. 2185, 2187], proved to be fungistatic to *Trichophyton mentagrophytes*, *T. purpureum*, and *Microsporum audouini* at a dilution of 1 in 10,000, and permitted only slight, atypical growth (when spores were used as inoculum) at 1 in 100,000.

2187. Loewenthal (K.). **Effect of roentgen rays on Microsporum canis: an *in vitro* study.**—*Arch. Derm. Syph., Chicago*, 63, 6, pp. 750–758, 4 figs., 1951.

Colonies of *Microsporum canis* on dextrose-peptone agar exposed to irradiation by 300 r of unfiltered X-rays remained macro- and microscopically unchanged, but some of their progeny exhibited abnormalities, consisting primarily in pleomorphic degeneration and massive deterioration of fuseaux formation. Presumptive evidence that these changes were the result of irradiation is based on (1) the occurrence of the degeneration phenomenon in two experiments and of the massive deterioration in four out of five; (2) the recurrence of both alterations in successive generations of colonies; and (3) the absence of both in the non-irradiated controls. Since occasional distorted spindles could be detected in a few control colonies, and because pleomorphism is of normal occurrence in *M. canis*, it is believed that the biological downward trend of an ageing strain was intensified and accelerated by irradiation.